The Analysts Journal

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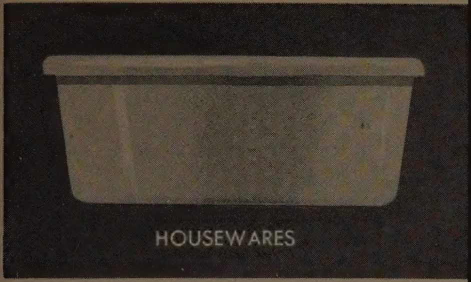

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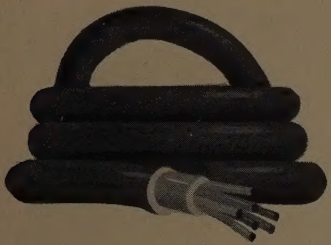

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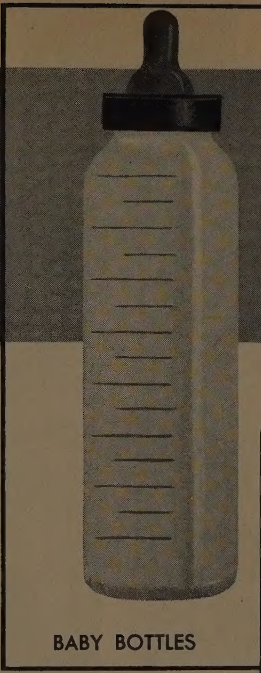

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and sale of bananas, sugar and othe
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A year of record performance by Air Reduction

HIGHLIGHTS OF THE YEAR 1956

WITH COMPARATIVE FIGURES FOR 1955 AND 1954

	1956	1955	1954
Sales	$169,818,703	149,231,826	123,315,272
Accelerated Amortization	$ 3,470,483	3,408,500	2,350,940
Income Before Taxes	$ 31,799,113	23,796,889	12,937,713
Federal and Foreign Taxes	$ 16,067,534	12,227,599	6,599,988
Net Income	$ 15,731,579	11,569,290	6,337,725
Earnings Per Share of Common Stock			
Before Accelerated Amortization	$ 4.78	4.08	2.26
After Accelerated Amortization	$ 4.32	3.54	1.86
Dividends Paid Per Share—Common	$ 1.90	1.50	1.40
Cash Capital Expenditures	$ 18,400,000	10,750,000	11,500,000
Stockholders' Equity	$115,653,995	105,954,459	99,286,178
Total Assets (less applicable reserves)	$162,611,483	150,886,087	139,869,079
Shares of Common Stock Outstanding			
Average Number During Year	3,577,923	3,009,639	2,802,210
Actual Number at End of Year	3,687,665	3,323,095	2,860,431
Number of Stockholders at End of Year			
Common	22,063	20,696	19,392
Preferred	1,991	3,147	4,240
Number of Employees at End of Year	8,358	7,858	7,666

Sales and Earnings Records

From 1946 to 1956 Air Reduction's sales have increased 138 percent while net earnings have increased 248 percent. Sales and net earnings reached all-time record levels in 1956, reflecting increases of 14 percent and 36 percent, respectively, over the previous record highs in 1955.

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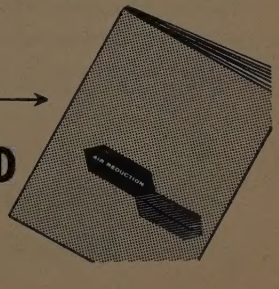
At one time Air Reduction served the metalworking markets almost exclusively. Today the Company directly or indirectly serves a broad list of industrial, commercial and consumer markets.

During 1956 nearly half of Air Reduction's dollar volume sales were in markets other than metalworking. Its constantly growing chemical production accounted for nearly one quarter of total sales in 1956. Moreover, the once narrow metal-working markets served by the Company have been broadly diversified.

Long-range planning, together with carefully channeled research and development programs, have produced new and improved plants, products and processes. As a result, Air Reduction serves virtually every important segment of the American economy.

(The Secretary will be happy to send you a copy of Air Reduction's 41st Annual Report which tells this story in greater detail.) ⟶



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Every Major Industry Uses Eaton Products!

As a supplier of component parts for a long list of America's most distinguished products, Eaton's markets include practically every major industry. The output of the 19 Eaton divisions and subsidiaries finds a place in motor cars and trucks, farm tractors and implements, railroad equipment, Diesel engines, aircraft, industrial machinery, refrigeration and air conditioning equipment, home appliances, business machines, communications equipment, construction machinery, and in many other fields where quality and dependability are important requirements. This broad diversification of interests and markets is not only good business for Eaton, it also safeguards the interests of customers and shareholders, and the security of employees.

In every one of these fields, Eaton research laboratories and engineering departments are continually engaged in the development of new products—and better ways of producing present products. As a result, Eaton's customer-manufacturers can assure *their* customers of the newest and best that foresighted imagination and mellowed experience can produce!

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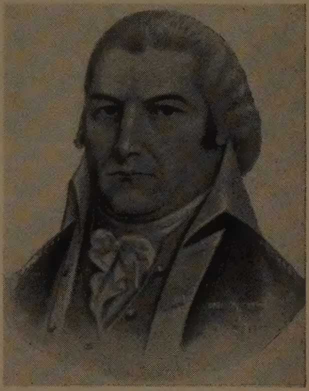
"The Beautiful City— The Forest Tree City"

ONE READS how Cleveland was made "great and glorious by sagacious minds." Moses Cleaveland recognized the probable future of the shore of Lake Erie and set about, in 1796, to buy a section of the then called Connecticut Reserve with the express purpose of building a city. After deliberate consideration, colored by hope, he planned a town, bearing his name, where he foresaw "industrial splendor." Lots were sold at profitable prices, making this undertaking one of the first great real estate developments.


Courtesy N. Y. Public Library
MOSES CLEAVELAND

Education played a dominant role almost at once, for in 1802 schools opened to all scholars, teachers and students, "without any distinction or preference." Industry likewise had an early start. The Ohio Canal gave evidence of the city attaining high shipping and manufacturing rank as iron and coal moved over its waters. Then mines were opened. Daniel Rhodes and David Todd developed the Mahoning Valley. Men worked for the advancement of their city; some died of exhaustion. It was Jacob Perkins who ruined his health and wished his tombstone might carry the inscription "Died of the Mahoning Railroad." Yet their projects succeeded.

County fairs for showing wares and manufactured goods became usual. Tailoring establishments flourished. The fine daguerreotypes made in Cleveland had wide popularity. From Doan's blacksmith shop, founded in 1798, developed signs of coming heavy in-

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City of Cleveland, Reservoir Walk (1872)

dustry. Automobile manufacturers learned from Alexander Winton's car, "put together in his back yard." Thomas White's sewing machine as well as his trucks found national fame. By 1884 five thousand men were employed at the Cleveland Rolling Mills. As had been planned, industry flourished in and about the city.

Shares in Ohio's manufacturing plants have been the source of wealth. Brokerage houses of Cleveland are among the best known in the United States. Everywhere Cleveland's financiers have had a wide acceptance.

How the Van Sweringens created the finest of suburbs, and brought a railroad to its gates, will be remembered as one of the outstanding ventures of economic history. They continued the work of Moses Cleaveland, and did as he might have directed.

Banks have been among the city's prides. The first bank met early reverses, but by 1832 it had been reorganized by T. P. Handy and enjoyed good fortune. Some sort of banking was undertaken by the Ohio Railroad. Later William Otis and Dudley Baldwin, two pioneers with benevolent tendencies, organized the "Society for Savings," where the poor might enjoy a "safe place to deposit their funds."

Perhaps the most widely known innovation was that of Leonard Ayres. His conception of business forecasting, set forth in a bulletin issued by the Cleveland Trust, laid the foundation for present analytical valuation of securities. Today's methods of forecasting rest heavily on indicators introduced and used by General Ayres.

The banks of Cleveland continue to fulfill their mission. At the Tenth Annual Convention of the National Federation of Financial Analysts Societies, Gilbert Palmer of the National City Bank of Cleveland will become the Federation's president. On this occasion members of the Cleveland Society of Security Analysts will display their full-grown banks, brokerage houses, arts and magnificent industries to students of securities from all over the United States and Canada. The members of twenty-one affiliated Societies will be grateful to Cleveland and to those who have made this fine convention possible.

H. S.

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Cleveland's Civic Center (1913)

Report on 1956 by

American Viscose Corporation

Net earnings of $14,909,000 were reported for 1956, equal to $2.93 per share of capital stock outstanding. This compares with net earnings of $24,709,000 in 1955, or $4.66 per share.

Best year ever for Cellophane Division. Once again the Cellophane Division had the best year in its history. Demand for AVISCO® cellophane continued to outstrip supply. Installations of new facilities at Marcus Hook, Pa., will increase annual capacity by 50%, bringing total yearly output to 150,000,000 pounds. This additional production will start reaching the market during 1958.

Sales up for associated companies. Sales and earnings in 1956 for associated companies were satisfactory. The Chemstrand Corporation, in which American Viscose holds a 50% interest, reported record sales. An expansion of Chemstrand's nylon capacity from 59 to 114 million pounds a year is currently in progress. The first of this additional capacity will be in production in mid-1957 and all of it will be available for operation early in 1958. Ketchikan Pulp Company, owned also in 50% interest by American Viscose, improved its earnings through greater sales and increased operating efficiencies.

Avisco Integrity Tag program grows. During 1956, the Avisco Integrity Tag appeared on more and more wearing apparel, carpets, bedspreads, and other home furnishings. Increasing numbers of manufacturers are requesting and qualifying for the Integrity Tag every day, aware of the fact that it is a sales aid for them as well as for American Viscose Corporation.

Research charts the future. Research and development activities were at their highest level in American Viscose history, indicating an increased emphasis on new products and new markets.

Statement of Income

	1956	1955
Sales and other income	$242,975,000	$260,583,000
Costs and expenses		
Cost of sales, selling and administrative expenses	195,299,000	193,155,000
Provision for depreciation	15,398,000	15,949,000
Total costs and expenses	210,697,000	209,104,000
Profit before income taxes	32,278,000	51,479,000
Estimated income taxes	17,369,000	26,770,000
Net income for the year	14,909,000	24,709,000
Per share		
Earnings	2.93	4.66
Dividends	2.00	2.00
Book value	46.53	44.33

The earnings per share shown above do not include earnings of The Chemstrand Corporation and Ketchikan Pulp Company. The Corporation's equity in such earnings amounted to $1.29 in 1956 and $1.76 in 1955 for each share of American Viscose.

At the end of 1956 American Viscose had 5,095,510 capital shares outstanding, owned by 23,300 shareholders. Shareholder equity increased from $227 million at December 31, 1955, to $237 million at the end of 1956, and book value per share increased over the same period from $44.33 to $46.53.

American Viscose Corporation
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to This Issue

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JOHN KALB

The security analysts sustained a great loss by the untimely death of John Kalb. It was in his early life that an interest in the future of the profession of financial analysis developed. He became one of the founders of the New York Society of Security Analysts and his name appears in the first "Roster of Members," printed in 1938.

John Kalb was an authority on the work and purpose of investment companies and mutual funds. His career developed into one of usefulness, service and loyalty. Even personal business ventures carried ideas for the betterment of investors and the protection of their savings.

In 1947 John Kalb became business manager of the Analysts Journal, which difficult task he fulfilled competently until the middle of 1950. His passing is a source of sadness to the editors and readers of the Journal, who shall ever remember his efforts for the publication with gratitude.

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TELEPHONE EXECUTIVES GO TO SCHOOL. From September to June, different groups of department heads and assistant vice presidents from various telephone companies attend Bell System Executive Conferences. Actual business problems are discussed and solved in small groups. Teachers and lecturers are top telephone men, professors from a number of leading colleges, and experts in the broad fields of economics, finance, labor relations, business management, etc.

Training for Telephone Management

Bell System training programs to build executive skills and stature bring many benefits to telephone customers and the company, as well as telephone people.

"If you want a crop for a hundred years, grow men." So runs an old proverb. And so runs the thinking of the Bell System.

There is nothing more important to good telephone service—and to the future of the business—than the finding and developing of capable people for management positions.

The Bell System has long been among the leaders in this field and it has pioneered new methods for the training of executives at various stages of their careers. They range from development courses for newly appointed managers to extensive liberal arts courses at leading universities.

The Bell System Executive Conference is an interesting example of one type of program. For four weeks, groups of telephone executives from different parts of the country live together, study together and debate together.

Specific problems in business are discussed and solved. But the larger objective is a better understanding of the broad field of economics, social forces, public and employee relations, finance and the administrative skills needed for effective leadership. Such a background becomes more necessary as the business grows.

The plan has worked so well that there are now Advanced Executive Conferences where each participant is put in the position of a general officer of a telephone company and emphasis is put on current and anticipated management problems.

From all of this comes a broadening of executive ability and stature for the needs of today and a continuing flow of able leaders for the years ahead.

Working together to bring people together . . . **BELL TELEPHONE SYSTEM**

Investors: It's On Us

DUDLEY SWIM

WE INVESTORS HAVE much more to do than merely wearing out the seats of our pants clipping interest coupons and cashing dividend checks.

As the owners of business in America, we are primarily responsible as citizens for protecting business from the depredations of government and in turn for giving business stability.

Prosperity breeds carelessness and sows the seeds of depression. Just as in turn, the foundations of prosperity are laid in depression. Since in troubled times business will be subjected to demagogic attack, We ought to be forehandedly mending our fences.

On the political front we have a stiff fight. So-called "liberals" egged on by agents of Moscow, will miss no opportunity to weaken the American economy as the best hope of the Red-Nazis to win the cold war.

The steeply graduated income tax system has been the darling of the Daily Worker, fellow travelers, Marxists generally and their unwitting dupes of the left-wing. As yet there has been little to alleviate a "political thievery," thinly disguised as taxation.

Moreover, exorbitantly graduated income tax rates, quite apart from undermining confidence in the basic fairness of the American system, are a major factor in promoting inflation and restricting American economic expansion.

"Who cares about expenses" either in large corporate enterprise or in an individual proprietorship if the larger part of the cost of excessive salary or wage boosts or overpriced materials and supplies "comes out of the tax bill." Time rather than money, i.e., convenience rather than cost, takes over as the determinant. Natural economic control is lost.

Then there is that gentle little reality known as "capital formation" which must provide the base for an expanding economy. America, also as part of the cold war effort, is confronted with financing not only the expansion of its own economy, but also in important measure the economic development of three heretofore lagging continents, South America, Asia, and Africa.

Yet our income tax system could hardly be more adroitly designed to discourage or destroy capital formation. Real capital can come only from savings. But the surplus income of the larger earners which would otherwise become savings is confiscated under the existing Marxian tax system. By what measure is there any social justice in requiring five per cent of the American people to have their pockets raided to pay bills that belong to the other ninty-five per cent or the country as a whole?

The present Administration has disposed of one tax measure that "compounded the felony" of Marxian income taxes. That was the so-called Excess Profits Tax (a fraudulent label for an efficiency and progress tax). Here the discrimination was against efficiency and growth. An instrument by which American enterprise could be more effectively stifled and the Stalinist cause better be served is difficult to conceive.

STOCKHOLDERS IN THE BUSINESS WORLD

In the business world we stockholders have even greater responsibilities than on the political front. Here we have the entire vote, not just part of it. Big business is not far behind big government in susceptibility to totalitarianism if a self-perpetuating group is left to its own devices. For in large publicly owned companies, some managements have a tendency to regard stockholders as existing by management's sufferance. In some other cases, managements are beholden to a small clique asserting highly organized influence rather than the authority of ownership.

Such unfortunate cases of totalitarianism will persist just as long as stockholders neglect to join together and use their franchise to express their own beliefs rather than to rubber stamp.

Plainly the need is for more substantial stockholders to interest themselves in their company's affairs and for the best qualified to become directors.

But do not be surprised if the door is not flung open and you, even as a very large stockholder, are not invited in by the ruling group. If you are a hit-and-run stockholder you probably should not be invited. Sometimes the resistance may come from a feeling of squatter's rights by the entrenched group. Or the board may actually be well and adequately set as is.

But who shall decide? In large publicly owned corporations the mass of stockholders are not organized. There is even no party machinery as in government.

Where there is no dominant ownership, the board is usually not, in fact, chosen by stockholders or a stockholder group. Rather the selection is by the president whom the directors theoretically are to direct and whose compensation they set, or by a controlling influence if the particular company is in such an orbit.

PRESIDENTS OF CORPORATIONS

A strong president will usually choose strong associates. May heaven bless him and give us more. But a weak president will make selections not from strength but for his comfort. One is reminded of that celebrated passage from "The Cult of Imcompetence" by Emile Faguet of the French Academy, "Except in a very few instances, which history records with amazement, a king has exactly the same reasons as the people for selecting as his favourites men who will not eclipse nor contradict him, and who consequently seldom turn out to be the best of citizens either in respect of intelligence or character."

A president feeling inadequate or insecure will have his mind too much on building his own political fences. Weak presidents feel a comradeship for one another. They frequently exchange board positions and the "Corporation

Presidents' Mutual Protective Association" thereby comes into being. Or a weak president will lean upon a willing counsel as "his second," the lawyer will become his spokesman and champion on the board, and, of course, the lawyer's fees will mount upward in recognition of these "special services."

The position of a corporation president does deserve much sympathetic understanding. It is a tough and sometimes a lonely job. He deserves all the help he is willing to accept. A president who has worked up the ladder usually has looked forward to having no boss. When he reaches the presidency he is often shocked to find that instead of having no boss, he has a whole board full of bosses.

ARTICULATE STOCKHOLDERS

The solution of these problems starts with the stockholders. Alert, articulate, active stockholders if organized can choose a vigorous, conscientious and wise board of directors to represent them. Such a board will do its job of choosing a good strong management, set management's compensation, determine policy often, if not usually, upon management's recommendation but not to the exclusion of the board's own initiative, and then leave the administration of the company to the management. Management should not attempt to usurp functions of the board; neither should the board interfere in management's operating domain as long as it is kept fully informed.

It must be admitted, that the device of the board of directors has not always been the strongest link in American business. There are many great and strong boards. But those generally recognized as such, big name boards, are not necessarily among them. There would be a scandal if it were known how little some boards do, the meetings being perfunctory, or how upon "receiving the word" they genuflect accordingly, or how a few directors serve adverse interests and exploit directorships for personal gain after the fashion of political patronage.

Investors, owners of many businesses, have the first responsibility to see that the house of business is made ever cleaner and more responsive to customer's needs and the public interest. As prime advocates of free enterprise it is up to us to keep our big business enterprises truly free.

Let us just run through some random test questions which each reader can decide for himself, and opinions will differ. But we can all agree that the recognition of shortcomings is a first step toward improvement.

Should the high pressure drive for sales in business be tempered with a greater sense of economic statesmanship?

Has the much touted American automobile industry been a credit to American business in recent years? Is the consumer being provided with a really well-made product of advanced design sold on its merits?

Has there been sales constraint to prevent overburdening both the individual consumer and our American economy with excessive consumer credit?

Obsolescence is a function of progress, but is it progress or an imposition on the consumer for a manufacturer deliberately to hold back improvement or make superficial design changes, solely for the purpose of creating future obsolescence or the impression of obsolescence.

Are the liquor and tobacco industries constructive in their purpose and exemplary in their ethics? Will their legislative activities stand the public spotlight?

Is the underwriting of rights necessary at the cost of a substantial commission? Should a company pay a fee to a banking group for purchasing unsubscribed stock under a rights offering usually at substantially less than the market price, when a group of investors would instead be willing to pay the company a fee for the privilege of taking up such unsubscribed stock?

Do directors meticulously observe the obligation of trusteeship to avoid self-dealing?

Should a director, or a director's firm except in the case of a public utility, be a seller of goods or services to the corporation?

Is it proper for incumbent directors to finance their side of a proxy fight out of the corporation's treasury, or should the expense to the corporation be limited to the cost of a routine stockholder meeting?

ARE FEES FOR DIRECTORS ADEQUATE?

Are directors adequately compensated in ample and forthright fees for the heavy responsibilities which a directorship actually entails and the time and effort which good "directing" requires?

Are stock options becoming an abuse when it is realized that, while one granting of options may cost a potential dilution of only five per cent, stockholders by the tenth round, will find themselves diluted out of half their ownership? When an option on stock is granted, not at 150 per cent of market value but at 95 per cent of market value, is it an incentive device or a "hand-out" and a tax dodge that can only lead to trouble?

Is there any reason why the very desirable objectives of employee stock ownership cannot be accomplished by stock purchase plans, with a firm purchase commitment generously financed with long term credit by the corporation, and the stock purchased in the open market to avoid dilution? (The employee immediately becomes a stockholder and not just a floating optionee with a free ride on inflation.)

If those in management are unwilling to become risk-bearing stockholders, the same as the rest of the stockholders, and therefore not willing to bet upon their own ability, should we stockholders repose the confidence in such a management that it is unwilling to place in itself?

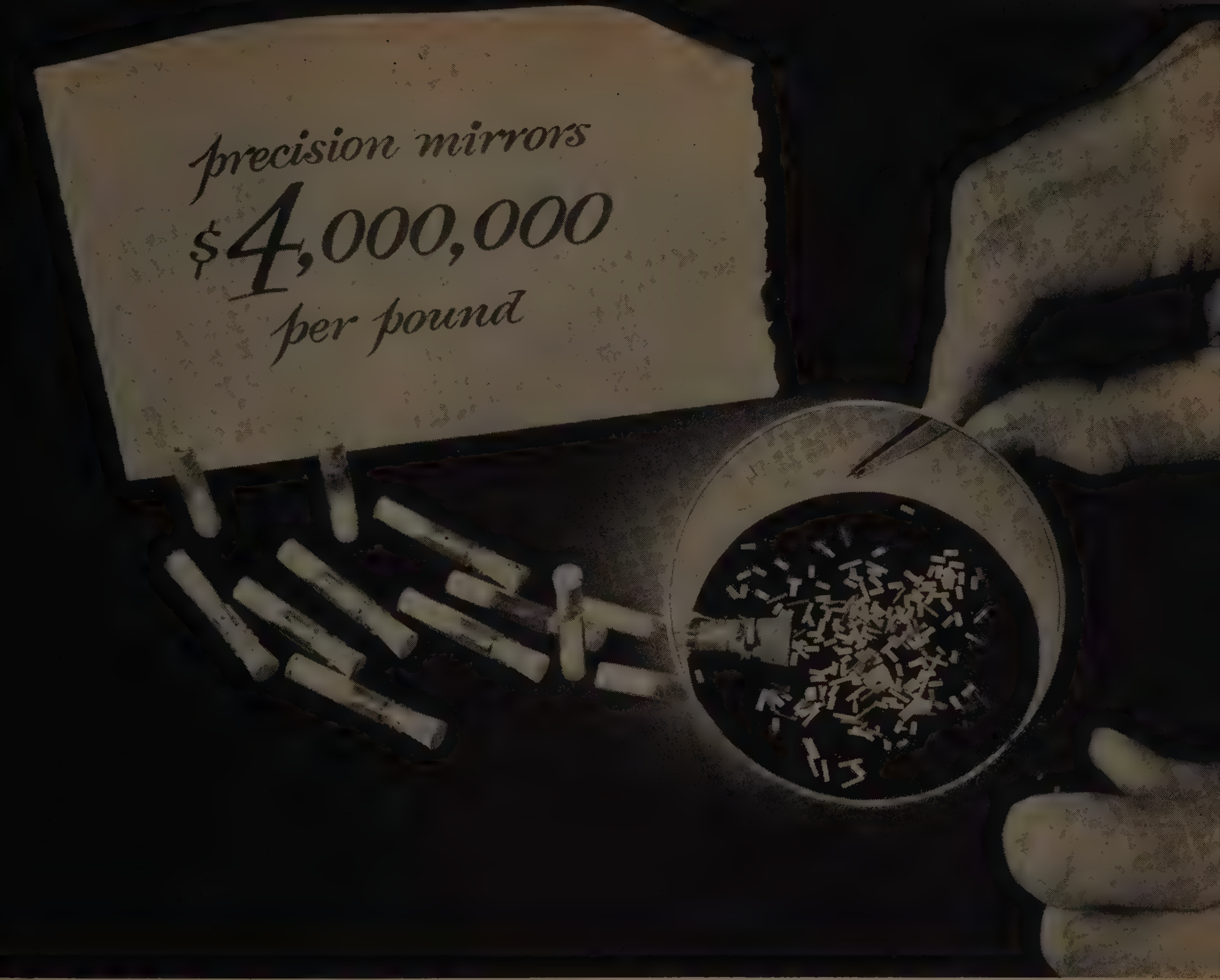
RISKLESS SOCIETY OR LEADERSHIP

Does a management seeking the riskless free ride of an option with the donation of inflation, realize that in our free enterprise system profit is the reward for the assumption of risk and that an economically riskless society is a totalitarian society with brutal and tragic political risks?

Are dignity and superficially nice manners ever a substitute for ability and genuine integrity?

In top level business "externals" are we emphasizing "regularity" and "conformance" or intellectual initiative, courage and integrity.

In the upper strata of the business fraternity, is the premium placed on "leadership" or "followership"?



miniature mirrors find fuel for your car

Your car's smooth motion is powered by gasoline . . . and these mirrors, speck-tiny and selling for about 50 cents each, help find and map the new pools of oil needed to keep your gas tank full.

They are mass-produced by the Texas Instruments Optics division . . . built into sensitive oil exploration instruments by TI's Industrial Instrumentation division . . . and used all over the free world by another TI subsidiary, Geophysical Service Inc., world's leading oil exploration firm.

These mirrors are typical of the precision products made by Texas Instruments . . . products made so well that TI has grown twentyfold in the last ten years. Of course, new discoveries and developments also have been major factors. For example, eighty percent of today's Texas Instruments products did not exist two years ago.

keep an eye on T/I

TEXAS INSTRUMENTS
INCORPORATED
6000 LEMMON AVENUE DALLAS 9, TEXAS

CLARK EQUIPMENT COMPANY

DECEMBER 31, 1956

Condensed Financial Report

The Company has mailed to all shareholders as of February 13, 1957, a preliminary report containing the financial statements for the year ended December 31, 1956. The financial report and operating particulars presented here in condensed form have been prepared by the company from the more detailed financial statements certified by the company's public accountants, Price Waterhouse & Co. Copies of the preliminary report to shareholders are available upon request sent to the Secretary at the home office of the company at Buchanan, Michigan.

CLARK EQUIPMENT COMPANY

President

SALES, INCOME, AND OTHER PARTICULARS FOR THE CALENDAR YEARS 1956 AND 1955

	1956	1955
NET SALES	$145,384,923	$131,252,441
Income before federal income tax	$ 18,401,357	$ 19,285,626
Provision for federal income tax	9,000,000	9,750,000
NET INCOME for the year	$ 9,401,357	$ 9,535,626
DIVIDENDS PAID IN CASH:		
Common stock—$2.125 per share in 1956 and $1.875 per share in 1955	$ 4,829,180	$ 4,197,229
Preferred stock—$5.00 per share	65,126	76,045
TOTAL DIVIDENDS	$ 4,894,306	$ 4,273,274
EARNINGS—per share of common stock outstanding (after dividends paid to preferred shareholders)	$4.11	$4.23

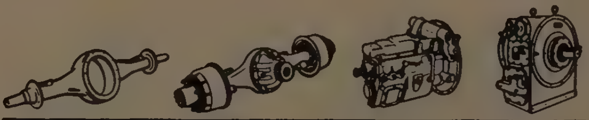
Balance Sheet - December 31, 1956

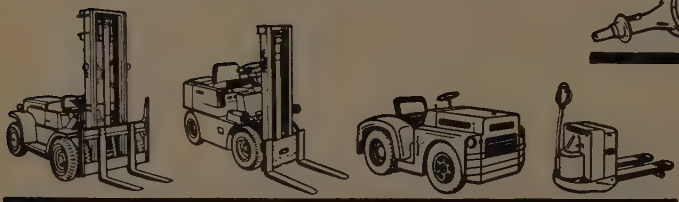
ASSETS

CURRENT ASSETS:		
Cash	$ 10,689,685	
Accounts receivable	16,140,349	
Inventories—at lower of cost or market	43,238,370	
Prepaid expenses	395,862	$ 70,464,266
INVESTMENTS		6,909,262
LAND, BUILDINGS AND EQUIPMENT	$ 44,882,479	
Less—Depreciation	16,739,316	28,143,163
		$105,516,691

LIABILITIES

CURRENT LIABILITIES		$ 30,712,939
LONG TERM NOTES PAYABLE		21,000,000
CAPITAL STOCK AND RETAINED EARNINGS:		
Preferred 5% cumulative—par value $100 per share (12,934 shares)	$ 1,293,400	
Common—par value $15 per share (2,273,010 shares)	34,095,150	
Earnings retained and used in the business	17,976,295	
Retained earnings of finance subsidiaries not consolidated	465,955	
	$ 53,830,800	
Less—Cost of 1,288 common shares held in treasury	27,048	53,803,752
		$105,516,691





CLARK EQUIPMENT COMPANY
Buchanan, Battle Creek,
Benton Harbor, Jackson, Michigan
St. Thomas, Ontario, Canada

Rock Island's Convert-A-Frate

JOHN D. LOFTIS

DURING THE PAST TEN YEARS there has been much discussion concerning the inroads being made into total intercity rail freight traffic by other forms of transportation. There has been much justification for this concern, as is indicated by the gradual decrease in rail percentage of total intercity freight traffic, by carrier, during the past fifteen years.

	1940	1950	1955
Railroads	61.1%	56.0%	48.4%
Waterways	19.2%	15.4%	17.4%
Pipelines	9.6%	12.2%	15.2%
Truckers	10.1%	16.4%	19.0%

This has caused some to think that railroads could be classed as an industry with no future and that it would be only a matter of time until attrition would dry up most of the rail lines and those remaining would handle only such bulk items as coal, ore, grain and straw hats. This, under normal circumstances, is difficult to believe where $1.00 in fuel will move one forty-ton freight car 151 miles; yet, a like amount of fuel will only move two twenty-ton highway trucks 11.9 miles, and one forty-ton 4-engine plane 3.1 miles. Utilization of equipment might offset some of this fuel advantage, but in checking how equipment is used we find that while the freight car is in revenue movement only two and one-third hours per day, the truck trailer is not in use much more, averaging one hour more per day in revenue movement. A 4-engine plane is in service from eight to ten hours per day.

A MASS PRODUCTION INDUSTRY

Rail lines are essentially a mass production industry, and that very fact contributes to some of their difficulties. It is not difficult for a railroad to handle a train of one hundred cars at sixty miles per hour (the generally accepted maximum freight train speed) and accumulate high gross ton miles per hour over long distances. Even locomotive and train servicing, and crew changes do not materially affect the average miles per hour for this train movement. When it is necessary to break up this one hundred car freight train, for any reason, production of gross ton miles per hour drops rapidly. This is true whether the break-up occurs at a terminal, or stopping to pick up or set out one car at a siding between terminals. Assembly of cars and their placement into trains also contribute much to the total of twenty-one and two-thirds hours per day when freight cars are not in revenue movement. This is the same situation as obtains in such mass production industries as steel, automotive, and meat packing. As long as production is concentrated upon one model of sedans, it is possible to produce large numbers at relatively low costs, but when it is necessary to interrupt the assembly line to put together a few convertibles, production suffers and costs rise.

There are many factors that have caused changes in the general transportation picture. Principal among these are the dispersal of industry, and tightening up of inventory control. Prior to World War II, basic steel was generally concentrated in the eastern and southeastern sections, and in the Chicago area. Now steel is rolled in most sections of the country and it is no longer necessary to ship long distances. Steel fabricators have set up production throughout most areas of this country. Even more important, however, is the choice of location in this dispersal.

More and more industry is moving out from the congested areas to points of labor supply and less expensive land. Where thirty years ago the prime consideration in the location of a new plant was access to a rail spur, this is not now always taken into consideration. There are industries in the Chicago area, within easy access of rail connection, that have not chosen to avail themselves of this facility. A recent study in one large metropolitan area indicated eight thousand rail-connected industries and sixteen thousand industries without rail facilities. This illustrates to some extent how dispersal of industry is adversely affecting rail movement of freight. Tighter control of inventory has not reduced the total amount shipped, but has reduced the size and increased the number of shipments. Where industries placed orders quarterly and permitted the shipper to ship at his convenience, they now place orders for like amounts, but specify shipments at stated intervals. Where it was possible for a smaller industry to accumulate a minimum carload and ship once each week, they are now shipping four times each week in smaller lots.

Until the convenience of truck transportation became a factor, industry was content to deliver small lots of production to the team track or local freight agency, and accept such shipments in like manner. Industry now demands platform to platform, or platform to job site handling. Even where delivery is accomplished in carload lots, congested areas have taken their toll of railroad efficiency. A recent study indicated that a movement from producer to the terminal nearest to point of delivery could be accomplished within twenty-four hours, but as many as ninety-six hours were required for delivery from the terminal to the customer.

COMPLETE FLEXIBILITY SOUGHT

All of these factors were taken into consideration by Rock Island when studies were made to see what could be done to stop the erosion of freight traffic. One of the first factors developed in this study was the lack of complete flexibility in standard freight car equipment. If the customer or shipper was not located on a rail line, the freight car could not haul the commodity its full transportation distance. Secondly, the size remained constant at all times, whether carrying ten thousand pounds for one thousand miles, or one hundred thousand pounds for one hundred miles. An analysis of this freight car equipment indicated that approximately 80 per cent of the cost is concerned with the structure required to make it roll on wheels, while only 20 per cent is concerned with the structure required to contain the load. The possibility of separating the containing structure from the rolling structure then became more attractive to permit the containing portion to serve the multiple purpose of containing the load, whether moving by rail, highway, barge, air, or ship. When this separation was accomplished, more of the problems became academic and simply a matter of engineering methods to handle them.

With this background, Rock Island started a search for simple equipment that would do the job in an uncomplicated manner. In cooperation with American Car and Foundry, a thirty-eight-foot flat car was developed to form a simple platform for any type of cargo unit that might be devised, and the rolling structure may be used to handle any commodity. Thus was Convert-A-Frate born.

SAVINGS BY THE CONVERT-A-FRATE FLAT CAR

The Convert-A-Frate flat car is simple. Because of its shorter length the beam strength could be reduced, and by utilizing the stacking principal with standard shapes, production is simplied. The car is constructed at a cost per lineal foot, of approximately 80 per cent of the standard flat car, and weighing approximately 60 per cent. The saving made on construction permitted other operational savings to be included, such as improved draft gear, roller bearings and high-speed braking. The car is standard height, forty-two inches; nine feet four inches in width, and weighs 27,000 pounds. It is equipped with four bolsters, four hold-down locks, and can handle two seventeen-foot cargo units or one thirty-five-foot cargo unit. Further weight could be removed from the car, resulting in lower cost, by the elimination of the decking, which is not required in Convert-A-Frate service and was included only to add to the flexibility of the car by making it usable in other services.

The inherent flexibility of the flat car is further enhanced by the fact that any type or shape of cargo unit may be handled thereon. The usual delays of placement of cars, loading time, and transportation of cars to main line trains may be entirely eliminated for the rolling structure. To illustrate the advantage of this, on an empirical investment of $5,000 for a Convert-A-Frate flat car and two cargo units, seventeen feet long, we have projected on one assignment a possible utilization of 100,000 miles per year, or five times the average flat car mileage, by the addition of only two sets of cargo units. The cost of these cargo units would add $2,000 to the investment, making a total of $7,000. When compared to conventional freight equipment and because of the greater utilization, the comparable investment for Convert-A-Frate equipment would be only $1,400.

Cargo units, which already include box, refrigerated, gondola, flat bed, hopper, brick carrier, rubber bulk carriers, and tanks, fall into two general categories, according to length—seventeen and thirty-five feet. The seventeen-foot units have a capacity of 35,000 pounds, less the weight of the cargo unit. With few exceptions, such as steel, brick and other bulk commodities, the cubeage is not sufficient to handle the full 35,000 pounds, and we feel that the general maximum net loading will approximate 25,000 pounds. In the case of fresh meat, moving in refrigerated cargo units, it is safe to assume about 1,000 pounds per foot of cargo unit, or 17,000 pounds for the refrigerated cargo unit, seventeen feet long.

At the present time, transfer of cargo units from rail to highway equipment is accomplished by Clark-Ross heavy lift truck equipment, with a lifting capacity of 30,000 pounds. Under development is a lateral movement transfer device which will reduce the weight and cost of the equipment required for this transfer. Transfer time approximates one and one-half minutes per cargo unit and securement to the rolling structure is automatic through the locking device.

Rock Island's first experimental movement was the movement of sheet steel from Granite City Steel Co. of Granite City, Ill., to Coleman Furnace Co. of Wichita, Kansas. Both origination and delivery were by truck.

STEEL MOVEMENTS

The second experimental movement was with steel originating in the Indiana Harbor (Chicago) steel district and moving to the implement manufacturing center in the tri-cities area. Here again the origin and delivery was by truck.

The third experimental movement was that of fresh meat from the packaging house in St. Joseph, Mo., and delivered direct to the retail outlets in the Chicago area. In this movement, the loading is direct into the cargo unit on the car, with truck delivery. In all cases, however, the business was taken from a movement currently being handled by trucks. In some instances a Convert-A-Frate flat car would arrive with a refrigerated cargo unit for fresh meat delivery and be returned by the next train, loaded with steel, again illustrating the flexibility of this type of equipment.

REFRIGERATED CARGOES

The refrigerated cargo unit is particularly interesting because it permits loading in the field, thereby furnishing immediate refrigeration to the perishable product, and will carry this function through to final delivery of the product regardless of time or distance. For example, fresh meat will be loaded directly into the cargo unit at St. Paul, Minn., handled by rail to Galveston, transshipped by sea to Panama, moved by highway to the interior, and there stored until the meat is required for use. At no time is it necessary to disturb the protective refrigeration, and each transfer is handled by mechanical means. Rock Island's first step into the refrigerated cargo unit made use of Minnesota Mining and Manufacturing "Scotchply" construction, where a one-eighth-inch skin on each side of a balsa core furnished the structural strength necessary for the construction. The balsa also furnished the heat loss barrier of insulation without the short circuiting normally encountered in metallic construction. This experimental approach has opened a wide field for the use of reinforced plastic construction which should lead to the increase of production of this material and its subsequent reduction in cost. We have ordered additional refrigerated cargo units, which will be constructed of aluminum, and these will be studied in relation to their cost and efficiency.

Looking into the future for Convert-A-Frate service, and for railroads in general, we see the greatest possible advantage in breaking down the barriers that now exist between railroads, the interchange, and the operation of solid trains of flat cars between load centers. With market research operating at peak efficiency, it should be a simple matter to stay abreast of the changing traffic patterns. Convert-A-Frate is completely mobile and can follow changing traffic patterns because all of the equipment required is mobile. Lift trucks, lateral transfers, tractors and cargo units may have their locations changed immediately without expensive remodeling of facilities or equipment.

SHORTER TRAINS

We think it possible to operate shorter trains at more frequent intervals between load centers to the extent that solid trains of fifty flat cars may be operated at intervals of four hours, making it possible to move freight in cargo units from the terminal within four hours after delivery. This would eliminate the last advantage of the over-the-road trucker, that of leaving immediately after loading. Of course it will take a selling job with the organized railroad worker to permit the reduction of manpower per train to two men, in place of the customary five, by selling them on the service feature to increase the competitive position of their employer.

Solid trains could then be dispatched between load centers with sufficient capacity to handle intermediate business by stopping the train and transferring to and from flat cars without the necessity of handling through a large terminal yard. It is even possible to envision the movement of Convert-A-Frate trains by electronic control, in a similar manner to an overhead or belt conveyor.

THE IMPORTANCE OF RESEARCH

Research and development, particularly market research, are as essential to the railroad industry as they are to other industries. Those industries that have prospered in the past two decades are those with strong research and development departments. It is true, however, that the low rate of earnings of most carriers has made it difficult to allocate much to anything but operations. It is also true that without progress this situation may further deteriorate. Unless railroads contribute to their customers' well being, through lower ultimate costs, better service, or in some other manner, they cannot hope to maintain their competitive position. Complete package bulk handling of products is one approach to this problem.

ARMOUR AND COMPANY

5% Cumulative Income Subordinated Debentures, Due 1984

★

Notice is hereby given that ARMOUR AND COMPANY, pursuant to the Indenture under which the above Debentures have been issued, will pay interest on the Debentures as follows:

May 1, 1957 —$2.50 per hundred dollars principal amount of Debentures
November 1, 1957—$2.50 per hundred dollars principal amount of Debentures,

being payment in full of all interest accumulated to the above mentioned dates.

Holders of coupon Debentures should detach Coupon No. 5 on May 1, 1957 and Coupon No. 6 on November 1, 1957 and present them for payment either at the Continental Illinois National Bank and Trust Company of Chicago, 231 South La Salle Street, Chicago 90, Illinois, or The Chase Manhattan Bank, 9th Floor, 37 Wall Street, New York 15, New York. The Trustee, American National Bank and Trust Company of Chicago, will mail checks for the interest payable on Debentures not in coupon form.

ARMOUR AND COMPANY
By: F. A. Becker
Vice President and Treasurer

April 1, 1957

CONSOLIDATED NATURAL GAS COMPANY

30 Rockefeller Plaza
New York 20, N. Y.

DIVIDEND NO. 37

THE BOARD OF DIRECTORS has this day declared a regular quarterly dividend of Forty-Seven and One-Half Cents (47½¢) per share on the capital stock of the Company, payable May 15, 1957 to stockholders of record at the close of business April 15, 1957.

R. E. PALMER, *Secretary*

March 21, 1957

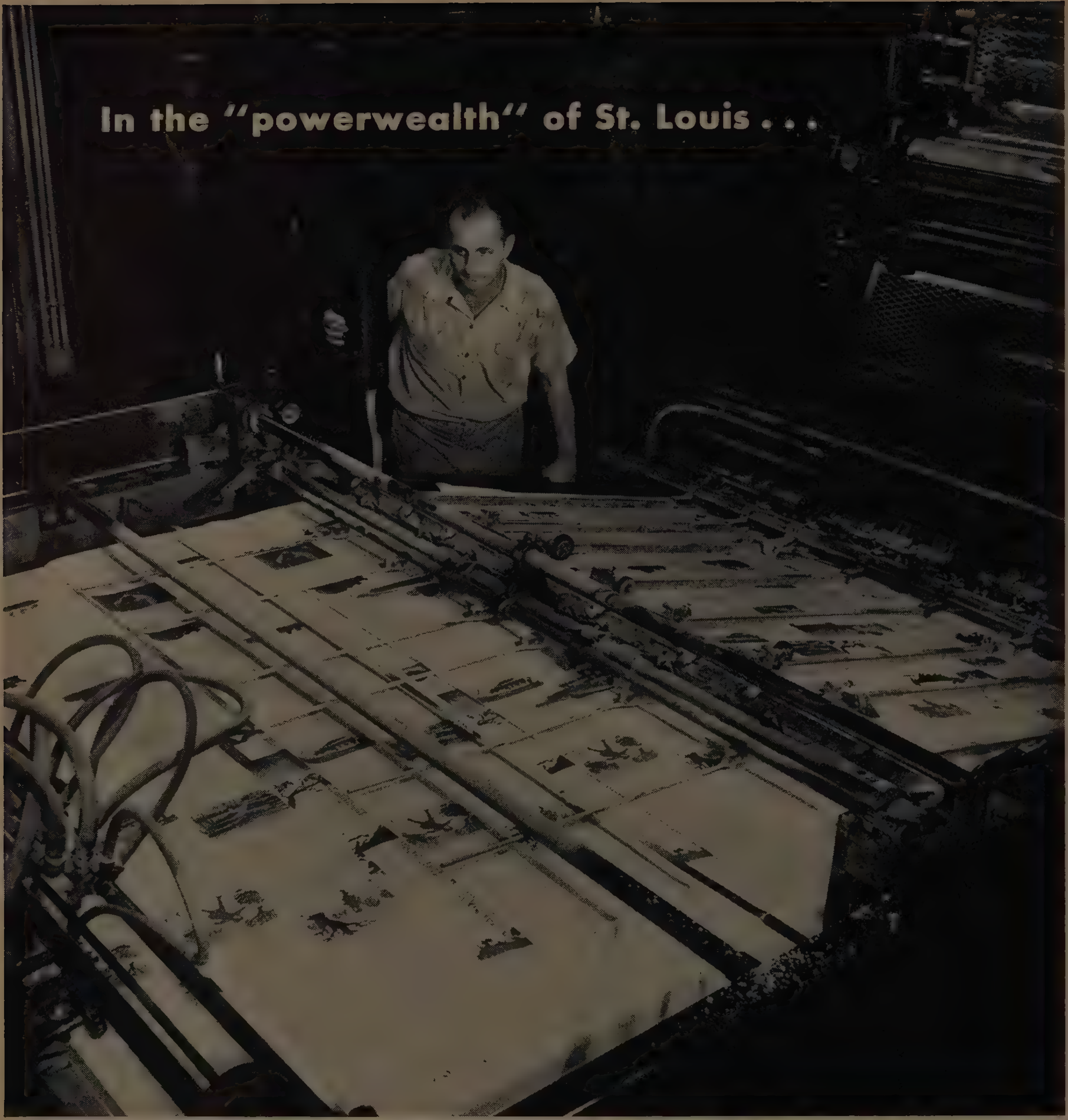
AMPHENOL

AMPHENOL ELECTRONICS CORPORATION

At a meeting of the Board of Directors of Amphenol Electronics Corporation held today a quarterly dividend of thirty cents per share was declared, payable April 26, 1957, to the shareholders of record at the close of business April 12, 1957. The transfer books will not be closed.

Dated at Chicago Feb. 26, 1957.

FRED G. PACE
Secretary


In the "powerwealth" of St. Louis . . .

St. Louis is the fifth largest commercial printing center in the nation, with an over-all output of more than 45 million dollars annually.

Union Electric produces twice as much power as the whole U. S. printing industry uses

Total production of Union Electric in 1956: 7.4 billion kilowatt hours. Average annual consumption of the U. S. printing and publishing industry: 3.1 billion kilowatt hours.

To serve its growing Midwestern area, Union Electric is constantly increasing its production to keep ahead of the thriving industries it supplies. Today's power production is so great it could meet the needs of whole segments of America's industry, such as printing. Even more capacity is in the building stage to meet tomorrow's requirements for dependable, low-cost power.

In just ten years, scores of major new industries have located here. Among them: aircraft, automobiles, soap, special metals.

We invite you to investigate the "powerwealth" of St. Louis as a location for your business. Write to J. E. Johanson, Industrial Development Engineer, 315 N. 12th Blvd., St. Louis 1, Missouri. UNION ELECTRIC, *comprising:* Union Electric Company, Missouri Power & Light Co., Missouri Edison Co.

PAST, PRESENT AND FUTURE—HOW UNION ELECTRIC HAS GROWN AND IS GROWING:

5 YEARS AGO—*In 1951, Union Electric produced 5.25 billion kilowatt hours.*

TODAY—*Union Electric produces 7.4 billion kilowatt hours, an increase of 40%.*

LOOKING AHEAD—*Construction under way or planned will increase capacity another 29% by 1960.*

An Analysis of a Current Problem of Analysts

HAROLD B. DORSEY

IT WOULD SEEM THAT ONE of the most difficult tasks for many investment managers today concerns the matter of adjusting some of the habits that they, and their clients, have acquired during the past ten years. In conformance with conditions that have prevailed throughout the postwar period, it has rather generally become a habit to conclude that a major portion of an investment portfolio should be concentrated in common stocks. Some conclude that a stock is a justified purchase if its earnings and dividends promised to rise or that a stock should be discarded simply because its earnings and dividend history indicated nothing more than stability.

Our opinions of the future are bound to be influenced to some degree by appropriate historical records, usually with most emphasis on the experience of the past several years. But this historical record provides an insecure base for projecting the future if it contains important abnormalities that may not continue. During the past year it has become evident certain significant conditions have changed from the status prevailing for some years past.

Even if we do not go into all of the underlying causes for this condition, we may observe the fact that interest rates, in general, are close to their highest in twenty years. This fact alone has practical significance for the analyst. There were several reasons why investors preferred common stocks over bonds during much of the past twenty years, but one of those reasons was the unsatisfactory yield on bonds. The fact of that condition has changed.

In the January issue of the Federal Reserve Bulletin it was pointed out: "By the end of the third quarter (of 1956) the liquidity ratio for corporations, that is, the ratio of cash and United States Government securities to total current liabilities, was the lowest since before World War II." Here we have another fact that is at variance with the historical experience of the past sixteen years. Since the fact has changed, there may be reason for the investment analyst to alter some of his thought-processes that might have become habits as a result of sixteen years of good corporate liquidity.

WHERE FUNDS MAY HAVE BEEN INVESTED

It may no longer be sufficient to relate total current assets to total current liabilities; much of the relative loss in cash and equivalent represents money that has been invested in higher inventories and receivables. Or, the deterioration in the liquidity ratio may be accounted for by higher current liabilities. It is up to the analyst to figure out the details for each company, but the fact that the financial liquidity for the total of all corporations has declined to the lowest level since prewar suggests that his attention should be focused more closely than heretofore upon the detailed effects that fan out from this particular fact.

And while we are examining liquidity, it might be noted that the ratio of cash and cash assets of the commercial banks to their deposit liabilities has declined to the lowest point in over twenty years. Here again it is a fact that we have a significant condition that is at variance with the experience of recent years. Since this is so, there may be occasion to revise some of our habits of thinking.

It will be recalled that an important part of World War II expenditures was financed by bank credit and hence the cash and governments held by the banks rose sharply in relation to expanding deposits. We entered the postwar period with liquidity ratios of the banks very high and the ratio of bank loans to deposit liabilities very low. Thereafter, many banks undertook unusual methods to encourage their customers to borrow, because the yields on loans were higher than the yields that the banks could obtain by holding Government securities.

BANK LOANS AND BUSINESS ACTIVITY

Money is borrowed to be spent. As bank loans expanded in the past ten years, the borrowed money was poured into the spending stream. This must have been a stimulant to business activity. As a generality we might say that the postwar period has been characterized by a conversion of liquid assets to more or less fixed assets. The economy has been spending not only its current earnings, but it has also been spending its initial high "inventory" of financial liquidity.

It is well to express this condition in several different ways, because each different method of so expressing it stimulates one's trend of thinking in the direction of specialized probable effects. For example, we may say that money supply (demand deposits plus money in circulation) in relation to the economy's need for money (Gross National Product) is the lowest in over twenty years. This ratio was very high at the beginning of the postwar period.

We may note too that this condition has recently been offset by an increase in the velocity with which deposits are being turned over. The annual rate of turnover of demand deposits in New York City was recently 64% greater than it was in 1949. For 337 smaller cities (excludes seven large cities) the turnover rate was recently 41% higher than in 1949. There is no law which says that this velocity rate might not go even higher, but at least we should observe that it is already historically quite high.

VELOCITY AN EFFECT

Furthermore, this velocity factor is an effect rather than a cause. It is a recognized measurement of the rate of business activity, which in turn is the result of the state of confidence, availability of credit, and all of the other basic forces which dictate the rate of business activity. The velocity with which demand deposits are turned over is a variable, which shifts without much forecasting significance. It is not a reliable substitute for basic money supply. Consequently, our attention here should focus more sharply on the fact that money supply itself is low in relation to the economy's need for money.

It is more difficult to prove statistically that the ratio of personal liquid assets to personal debt has declined through the postwar period, as it has for corporations and banks. We do know, however, that personal mortgages and short-term debt have increased very sharply in the postwar period.

On this particular point, personal debt is often related to personal income. We must remember that the personal income side of this relationship was being stimulated by the spending that was generated by debt expansion. Or we might put it: personal income was increased by the very process of reducing the liquidity of the corporate, bank and personal sectors of the economy. Hence, when we relate personal debt to personal income we are relating it to a factor of which it is an integral part. We might question whether personal income would stay up, if debt stopped expanding. But the burden of the outstanding debt would continue. The dynamics involved in this particular point should be the subject of much more research work than has been done on it to date.

MANY FACTORS INFLUENCE CONDITIONS

The analyst is thoroughly aware of the many factors which operate in changing combinations to dictate business conditions, earnings, dividends, price earnings ratios and yields. The monetary situation is only one of these impacts. Nevertheless, money and credit must be one of the more significant forces and the changes in this factor that have taken place in the last sixteen years should be an important part of our thinking. We should thoroughly understand the influence that these changes have had upon the historical record of the past five or ten years that we may be inclined to use as the base for projections.

To be more specific, we must face these facts, and they are facts, not opinions:

(1) The financial liquidity of banks, corporations and individuals was built up to abnormal heights from 1940 to 1946.

(2) Financial liquidity of these major segments of the economy was extremely high at the beginning of the postwar period.

(3) From 1946 to 1956 the financial liquidity ratios of the economy were in a general downward trend.

(4) The financial liquidity ratios of the commercial banks has now declined to the lowest point since the early 1930's.

(5) The corporate liquidity ratio has declined to the lowest level since prewar.

(6) In the personal sector, the ratio of liquid assets to debt has undoubtedly been in a major declining trend over the past ten years, but it is difficult to prove statistically that the present status of this ratio bears some precise relationship to the comparable ratio of prewar years.

(7) The ratio of money supply to the economy's need for money was very high at the beginning of the postwar period, but it has now receded to the lowest point (seasonally adjusted) since the early 1930's.

(8) Interest rates, in general, have risen to the highest point in over twenty years.

After we recognize these cold facts, we must undertake the job of interpreting their meaning. Such interpretations must necessarily involve matters of judgment and these judgments may vary over a wide range. Nevertheless, the following presumptions would seem logical:

(1) The high state of liquidity at the beginning of the postwar period must have been propitious for spending of all types.

(2) The very process of losing liquidity in the ensuing ten years—the spending of the cash, or the borrowing against a strong cash position and spending the avails of that borrowing—must have accounted for a portion of the business activity that has formed the historical record of the past ten years, the record which we are tempted to use as a base for projections.

(3) The degree of financial liquidity must have had some influence upon price/earnings ratios and yields (e.g., it explains why bond yields were too low to be attractive to investors). The monetary factor has become less favorable for high price/earnings ratios than it was throughout the earlier postwar years.

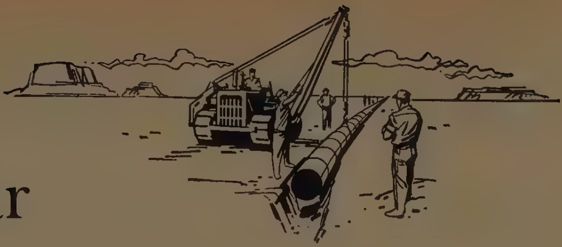
(4) The fact that the liquidity ratios of banks have declined to historically low levels suggests that there is less elbow-room for further bank loan expansion, a lack of flexibility that is in contrast to the condition to which we became accustomed in earlier postwar years.

(5) The fact that the liquidity ratios of corporations have receded to the lowest point in fifteen years might suggest: (a) greater resistance to spending, or (b) less liberal dividend policies, or (c) the need for new financing, all in contrast with the more liquid position that the corporate sector has enjoyed throughout the past fifteen years until recently.

A MAJOR INFLUENCE

The foregoing effort to direct attention to one of the major forces that influence business activity, corporate earnings and investment policies could lead to an unbalanced perspective of the whole problem. Population is still growing, technological progress continues, the long-term trend of the standard of living is still upward, and expenditures of federal, state and local governments are still rising. Whatever significance the analyst assigns to the monetary situation must necessarily be blended with his appraisal of all of the other forces.

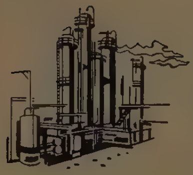
Each investment manager must formulate his own conclusion on how these various forces balance out in terms of investment policies. It happens to be this writer's conclusion that policies should revert to those from which many have strayed in recent years; namely, to think in terms of a portfolio that is balanced between fixed income securities and equities, and, in the latter category, with a reasonable balance between cyclical and non-cyclical stocks. This policy was formerly acceptable to the investor, before he acquired the habit of anticipating the persistent market gains that could be achieved through all of the years when monetary factors were much more favorable than they are now.



Energy needs soar

IN FAST-GROWING WEST

*El Paso sets new records in serving western markets** 1956



In 1956, the nine Western and Southwestern states now served by El Paso Natural Gas Company and its subsidiary companies reached record levels of prosperity. Population increased by almost one million persons. Per capita income was at an all-time high. New businesses and industries sprang into existence.

This brought soaring demands for energy — and foreshadowed far greater requirements in the future.

In 1956, El Paso Natural Gas Company set new records in meeting Western needs. More important, it took positive steps to enable it to serve this growing market in the future.

Looking to the future, El Paso—

- Constructed and placed in service approximately two-thirds of an additional system capacity of 450 million cubic feet per day, authorized by the Federal Power Commission in late 1955.
- Contracted to deliver an additional 435 million cubic feet of natural gas per day to Western customers. Upon completion of expansion programs required under these preliminary agreements, El Paso will have a delivery capacity somewhat in excess of three billion cubic feet of gas per day.
- Obtained access—through acquisition (completed in early 1957) of Pacific Northwest Pipeline Corporation — to the proven and potential sources of natural gas that can be economically delivered to markets served by the entire system.
- Consolidated its position in oil production, refining and marketing, and established bases for participation in petrochemical production.

HIGHLIGHTS

	1956	1955
Operating Revenues . . .	$221,515,546	$179,451,092
Net Income (After Income Taxes) .	$ 26,736,242*	$ 19,031,211*
Preferred Dividends . . .	$ 4,039,940	$ 3,858,271
Balance for Common Stock	$ 22,696,302	$ 15,172,940
Number of Common Stock Shares Outstanding . .	10,770,170	9,935,720**
Earnings per Common Stock Share	$ 2.11	$ 1.53**

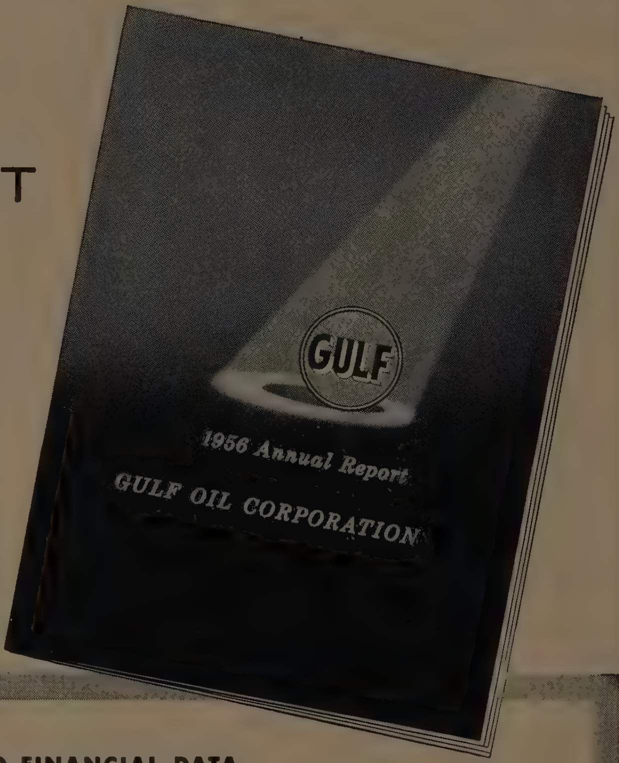
*After provision for possible rate refund.
**Giving effect to two-for-one stock split of December, 1956.

For copies of El Paso's 1956 Annual Report to Stockholders, write El Paso Natural Gas Company, El Paso, Texas

* *The Western market served by El Paso Natural Gas Company and its subsidiaries includes California, West Texas, Arizona, Idaho, Nevada, New Mexico, Oregon, Utah and Washington.*

EL PASO NATURAL GAS COMPANY

HIGHLIGHTS FROM THE GULF OIL ANNUAL REPORT



1956 was a year of significant progress for Gulf.

Net income was 30% higher than in 1955, with United States operations accounting for the major portion of the increase.

Earnings improved in foreign areas, too. Income was up in both the Western and the Eastern Hemispheres, with the Middle East showing some gain despite the closing of the Suez Canal.

Salient facts from our Report are presented below. We'll be glad to mail you a copy if you'd like one.

CONSOLIDATED FINANCIAL DATA

	1956	1955
Net Income—Total Amount	$ 282,658,000	$ 218,064,000
Net Income—Per Share *(based on shares at end of each year)*	$9.54	$8.19
Cash Dividends Paid—Total Amount	$ 69,244,000	$ 57,458,000
Cash Dividends Paid—Per Share	$2.50	$2.25
Stock Dividends Paid	5%	4%
Total Assets	$2,872,270,000	$2,160,821,000
Net Sales and Other Operating Revenues	$2,339,715,000	$1,895,670,000
Capital Expenditures *(for properties, plants and related assets)*	$ 465,950,000	$ 274,480,000
Depletion, Depreciation, Amortization, etc. *(non-cash charges)*	$ 217,185,000	$ 162,626,000

OPERATIONS DATA—DAILY AVERAGE BARRELS

(Includes Gulf's equity in companies less than 100% owned)

	1956	1955
Gross Crude Oil, Condensate, & Natural Gas Liquids Produced	1,087,097	971,334
Net Crude Oil, Condensate, & Natural Gas Liquids Produced	997,777	897,195
Crude Oil Processed at Refineries	667,806	587,867
Refined Products Sold	695,688	600,956
Natural Gas Liquids Sold	111,818	10,507

Financial and operations data in 1956 include Warren Petroleum Corporation, The British American Oil Company Limited, and certain subsidiaries and affiliates not previously included; hence, figures for 1955 are not directly comparable.

(For a copy of Gulf's Annual Report, write to the Secretary, P. O. Box 1166, Pittsburgh 30, Pa.)

Federal Income Taxes, Business Enterprise and a Depreciating Dollar

SCHROEDER BOULTON

PRIVATE ENTERPRISE HAS attained an advanced growth in the United States. In this, we are envied by much of the world, nor do we shrink from praising ourselves! The rest of the world does not envy us our tax laws. Our corporate taxes not only are about the highest, but personal taxes against the middle income brackets are nearly confiscatory and against the top income brackets actually confiscatory. A private enterprise economy thus labors under a settled contradiction: an anti-private enterprise tax structure.

As compared with an effective peak personal tax rate, Federal and State combined, of 92% (New York), the peak personal tax rate in the Soviet Union is 12%. Thus, while our own economy suffers a tax structure that is unsuited to private enterprise, the economy of the Soviet Union flaunts a tax structure appropriate to private enterprise. Nor is the comparison academic: in Russia, a growing class of scientists, engineers, industrial managers, writers, actors and other professional people has been moving into the salary group that, in these same professions here, faces a Draconian income tax. Plain economic facts, rates of pay and rates of income tax, may underlie a circumstance lamented often: the number of scientists and engineers has been growing only half as fast in the United States as in the Soviet Union!

Steep as our progressive tax schedules appear, in actuality they are higher than they would seem at first blush. A steadily growing weight of income taxes has taken many individuals by surprise. There has been little general understanding of the process whereby, whenever wages, salaries and, with these, the cost of living and dollar incomes advance, taxpayers are faced with a more than proportionate rise of tax obligations. The process is a radical one, caused by the mountainous upward slope that, over the years, has been built into the structure of personal income taxes.

For single individuals, the Basic Federal Income Tax of 20% starts with incomes as low as $667 annually, far below the government's own estimated minimum for decent living. Making allowance for standard deductions, a 2% added tax begins as soon as incomes exceed $2,891. The tax rate rises fast, and on incomes above $11,601, it is 38%; on incomes above $19,601, it graduates to 53%; above $51,601, 75%; and above $101,601, 89%. On incomes above $201,601, a punitive top tax rate of 91% is levied.

Unlike many countries, the United States does not, excepting for a limited allowance, credit the individual tax payer for corporate income taxes paid. Thus, the top-income dividend recipient may actually find himself in the somewhat unbelievable tax bracket of 95% plus!

In this progression from an initial 20% personal Federal tax to a 91% peak tax, more than half the distance (47%) is reached as soon as a single person has earned $15,601, or a married person (using the joint return privilege) $30,201.

Despite the combined burden of (1) ever-steeper personal income taxes, and (2) and ever-rising cost of living, economic growth in disposable real income has been achieved. Many groups, however, have fallen far behind overall growth; and a few have been cruelly unable to keep up with the rise of living costs. The unlucky ones include, notably, pensioners and others dependent on relatively fixed incomes. Also, a surprising variety of others have been affected, notably successful professional people and successful managers of their own businesses.

Of import to the growth of the United States economy, organizers and developers of businesses, such as those who accumulated savings in other periods, have found themselves, in the prosperous post World War II era, with little left over after providing for taxes and living costs. This cold reality throws a clear, if unpleasant, light on the shortage of capital now faced by so many small businesses.

How, actually, has the impact of rising personal taxes been felt? The table below shows the long-term effects on real incomes of the rise in tax rates and the decline in the

Personal Incomes, Taxes and Living Costs

Per Cent Rise in Gross Income Needed to Maintain an Unchanged Net Real Income

	Gross Income Bracket of 1940						Cost of Living 1940=100
	$2,500	$5,000	$15,000	$25,000	$50,000	$100,000	
	Married Man, Wife and Two Children						
	Rise Needed, from 1940 Base, for Maintenance of Earnings						
1944	36%	47%	96%	161%	500%	644%	126
1949	81	89	107	124	141	164	170
1953	112	125	182	249	442	655	191
1956 (Aug.)	115	125	166	213	351	555	195
1957 (Jan.)	118	129	172	221	370	574	198

"Now, here, you see, it takes all the running you can do to keep in the same place."
Charles Lutwige Dodgson (the Red Queen, Alice in Wonderland)

dollar. Embracing a variety of typical incomes, this table, covering the period from 1940 to date, indicates, for key years, the per cent growth of dollar income that would have been required to maintain net disposable real income unchanged. The $2,500 earner of 1940 had to earn, in January, 1957, at an annual rate 118% higher than in 1940 (annual income in 1957 $5,450) merely to stay even. At the other end of the spectrum, the fortunate $100,000 earner of 1940 required 574% more (annual income in 1957 $674,000) to keep the same income status he had in 1940.

The ratios given above reflect only the minima required for maintenance of previous earnings in real terms, with no adjustments for family growth or desirable rise of living standards. The data shown are based on living costs of each year, as estimated by the United States Bureau of Labor Statistics, and on the Revenue Acts applicable to the years in question. Some understatement of taxes is involved, as in many states income taxes have been initiated or raised over this period, and local income taxes also have been introduced in some cities. For instance, New York State has an income tax of from 2% to 7%, and Philadelphia has a city income tax of 1 1/2%.

The foregoing table shows the combined practical results of rising taxes and advancing living costs. In this respect, the table differs from the average tax presentation giving merely the rise that has taken place in the tax rates alone. However, even considered by itself, the rise in rates has been significant. For the lowest paying income tax brackets, the starting tax is now 20%, as against 4.4% prior to World War II. For high bracket taxpayers, the rise in a sense has been even steeper, in that it has cut by as much as 75% the amounts remaining after tax payments. On incomes above $100,000 before World War II, the tax was 60.4%, leaving the taxpayer 39.6% of pre-tax earnings. Today, on incomes above a depreciated $100,000, the tax rate is 89%, leaving the taxpayer only 11% of pre-tax earnings.

TAX INCREASES DURING WORLD WAR II

Enormous tax hikes were made, during World War II, against top income groups, and lesser hikes against lower income groups, but reductions were voted after the war. In 1949, for the income groups shown in the table, a rise of dollar incomes of from 81% to 164% would have covered changes in living costs and taxes after 1940. By comparison, the top income group would have required a gross income rise of 644% in 1944. The easier position of 1949 reflected, in part, a newly enacted privilege of splitting incomes between husband and wife, a privilege previously possessed only by taxpayers in the few states where in this respect state law prevailed over Federal.

In 1950-1953, through tax increases to finance the Korean War, the Truman Administration more than cancelled the tax cuts of 1946-1949. The Eisenhower Administration thus far has suggested and carried through only one comparatively modest tax cut, that of 1954, leaving basic rates perilously near the Korean War peak. This tax cut has been more than offset, in many brackets, by a continuing rise in the cost of living.

By means of the changed tax structure, the Federal Treasury has become an insidious Partner of Inflation, in fact, a Beneficiary of Inflation, beneficiary because it obtains a rising share of any rise in dollar incomes reflecting depreciation of the dollar.

TODAY'S TAXES

Today, because every income recipient is tax conscious, tax calculations affect, in an inflationary way, virtually all negotiations concerning wages, salaries and other income payments.

Knowing that they may deduct from income taxes over half of any increased costs, corporations often tend to let barriers down against wasteful spending. The effects of high corporate income taxes on corporations are highly variable, in some respects involving as many injustices and difficulties as for individuals. For corporations, the tax rate has more than quadrupled, from 13% in the late '30s to 52% (or 54%, consolidated) now. In respect to taxes, corporations may be divided into three classes: (1) those that, because of special exemptions, avoid the full brunt of high taxes; (2) those that, for one reason or another, are unable to pass on high corporate taxes in the pricing of their products; (3) those that are able to pass on high taxes. The latter group often runs up high and inflationary expenditures (including outlays for entertainment), as such costs are underwritten to the extent of more than half by permissible tax deductions.

On the other side of the coin, individuals, in the knowledge that they must reserve heavily for progressive income taxes, tend to demand dollar amounts far higher than would be needed in an environment of level taxes.

For individuals, the interrelated problem of incomes and taxes has grown larger, and worse, with passage of time and growth of dollar incomes: income requirements swell as recipients move into higher tax brackets. The man in a 50% bracket who requires an additional $100 asks $200, the man in a 75% bracket who requires an additional $100 asks $400. Thus, in its special participation in the intense race with inflation, the Treasury Department finds itself both an author of fresh inflation and a profiteer from it.

Inflationary taxes tend to discourage productive activity. This discouragement extends from the highest income brackets down to the income brackets which presumably are low-taxed, but actually are not, for instance, wives and other household members whose earned incomes are added to family incomes in tax calculations.

UPPER INCOME BRACKETS

For an individual to keep $64,000 after taxes from the $64,000 Question, he would have to win a minimum of $448,000. Going rapidly down the scale this lofty peak, in other income brackets, upper, medium and lower, decisions frequently are made that a risk is not worth taking in light of the share of any gain appropriated by Uncle Sam. Even when risks are not great and gains seem sure, a decision frequently goes against remunerative productive work, because the retained net would be unattractive. Wives who would otherwise be very interested in a secretarial career become less interested when they learn how little would be left from the effort involved. Added costs of carfare, clothing and similar items required for a job are not deductible in calculating taxable income. Therefore, if the husband's salary is as little as $4,000, the added family net income from a wife's salary of $3,600 annually may be as little as $1,400. This is before allowance for costs of added domestic help, often necessary if the wife is absent at work.

Any artificial restraint of productive activity is particularly unfortunate in this present period, when additions to the labor force will decline because of the low birth rates of the '30s. Shortages of needed personnel already have developed in nearly all trades and professions.

When, because of taxes, it is imprudent or uninviting to proceed with a particular activity or project, the effect, sometimes, is not to end the proposal but rather to drive it to another country where taxes do not present such an obstacle.

EFFECTS OF OUR TAXES

From the foregoing, it seems clear that our undesirable tax structure has a variety of unfortunate effects, including injustices to individuals, encouragement of inflation and discouragement of national economic development.

Because of the cramping effect of taxes, pressures arose, long ago, for a variety of tax exemptions. Over the years, such exemptions have grown to an imposing total, protecting incomes received by retired persons; contributions to pension funds; certain types of insurance payments; and income received from a number of specified activities, including the growth and sale of timber, the exercise of management stock options, the operation of real estate and farms, the sale of beef cattle and the successful drilling for oil. As a result, an increasing percentage of aggregate individual income has become exempt from taxes, or is taxed at preferential rates.

Exceptions or adjustments have been equitably designed in some cases, while in other cases they are open to criticism as resulting from the clamor of particular pressure groups. In the aggregate, they constitute, essentially, an evasion of the real problem: that the broad framework of the entire individual tax system is inefficient and inequitable.

The great majority of taxpayers do not benefit significantly from specially tailored exemptions; on the other hand, many are hurt by special, and entirely unnecessary, inequities. Self-employed professional people, including doctors, lawyers, authors and artistic people, as well as the many members of business partnerships, are hit by the full brunt of personal income taxes, with few offsets either in the special privileges accorded to particular groups of individuals or in the general privileges accorded to corporations.

If, in a particular year, an individual earns an enlarged income, he becomes subject to progressive taxes on that income, so that his savings are kept small. In a subsequent year, if his earnings fall to low figures, no way is provided to average the annual returns. In effect, therefore, the taxpayer finds himself sharing earnings with a tax collector who refuses to share risks. Particularly burdensome is this system on the individual whose income naturally fluctuates from year to year, as this man can never obtain the same aggregate net income after taxes as the individual who earns steadily.

The Revenue Act provides (although sometimes inadequately) for the physical depletion or depreciation of corporate assets. For the individual, no comparable allowance is available against the rapid physical depletion of personal productive assets that is unavoidable in many professions, notably theatre arts and sports. The few cases which have reached the newspapers of income tax bankruptcies of writers, actors and sports champions having high but fluctuating incomes represent the same sort of person who, before the present enlightened era, enjoyed in real savings the fruits of preeminent accomplishment.

At the time that the Eisenhower Administration was elected, in 1952, it was widely expected that tax studies to be undertaken would issue in a thoroughgoing revision of personal as well as corporate taxes. This expectation has been disappointed, in part because of the continuance of high budgetary outlays even after the ending of the Korean War. An across-the-board reduction of personal taxes was part of the Revenue Act of 1954. Also, and of great importance, the corporate excess profits tax was terminated. Otherwise, in its great variety of provisions, both corporate and individual, this Act offered mainly a profusion of amendments favoring particular classes of taxpayers.

EFFORTS AT TAX REVISION

Since 1954, efforts at tax revision have failed in spite of a number of proposals that have been put forward urgently. The American Taxpayers Association has urged a constitutional amendment limiting income taxes, both corporate and personal, to a 25% rate except in case of war or national disaster. This amendment, voted favorably by the legislatures of 27 states, is far from actual enactment. A less far-reaching proposal, that of the National Association of Manufacturers, for reduction of personal and corporate taxes alike to a ceiling of 35%, to be accomplished in steps over a 5-year period, has received little attention, even though the well documented calculations which indicated that this proposal may be accomplished within a balanced budget have not been challenged seriously.

One reason for lack of progress in income tax revision is the official attitude of the Treasury Department that no substantial tax cuts should be made until the budget itself is cut. However, government expense cutting, desirable as it is, need not be the only route to tax reform. Although politically defeated in the past in this country, some taxing methods still are available which, in the present period, would be acceptable substitutes for at least the more suffocating portions of the income tax.

Such alternatives, which in other countries have proved desirable choices against peak income taxes, include manufacturers' sales taxes and wholesale turnover taxes. To explore the whole range of tax alternatives is beyond the scope of this study, particularly as fresh tax sources may well be unnecessary to a balanced budget!

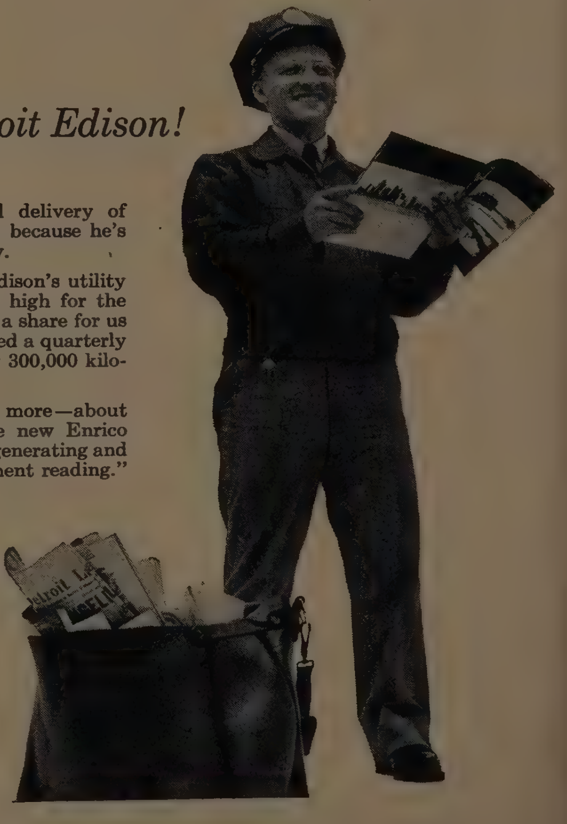
The cost of reducing the obesity of our tax structure would be smaller than the average person may imagine. In calendar year 1956, all United States tax revenues approximated $71.0 billion, of which approximately $32.6 billion (net after refunds) came from personal income taxes. Only $2.5 billion in 1956 represented the revenue from progressive taxes against incomes of $20,000 and over. In other words, only 3.2% of tax revenues came from tax brackets above 56%. Similarly, only 6.2% came from brackets above 34%.

A defeatist attitude about tax reform has arisen, following the many disappointments of the past twenty years. One reason for this attitude may be a political miscalculation: that, in order to get votes, politicians must keep taxes high against those with medium or high incomes. This widespread thought, particularly widespread among politicians themselves, may rest on a misconception. The average citizen is mostly interested in his own tax, not in the taxes of others. In fact, the average taxpayer does not even know that the top tax rate far exceeds 50%. A survey, conducted early in 1955, by the American Institute of Public Opinion (Dr. George Gallup), indicated that "if the public itself were to set Federal income tax rates it would make families in the lowest income brackets pay more tax than they now pay and it would take less money away from men of wealth." Several surveys have been made of this subject; this same Gallup survey found also that fully 53% of the public would favor an income tax limit as low as 35%.

In the long history of our country, we have not yet acquired a necessary background for the defeatism about taxes now prevalent. In the '20s, here, ways were found to cut taxes radically, both personal and corporate. Known, also, are some enlightening experiences in other countries. Thus, when, six years ago, the recovery of West Germany was hobbled by the same sort of tax problem faced here, the West German Government met the problem. Overcoming a much smaller protest than expected, it carried through a tax reform that has stimulated the most impressive industrial growth of any country in Western Europe. The top personal income tax rate was reduced to 55%, the capital gains tax was, in effect, eliminated, the double tax on corporate dividends was reduced, and exemptions were provided to encourage the accumulation of capital for new investment. One of the hardest things in politics and economics is to learn; if we do learn from the German experience we shall have learned to our own benefit.

If (1) taxes in the past have been reduced here and (2) taxes in most countries of the Western World (including the Soviet Union!) are now less burdensome than they are here, what then stands in our way except an unnecessary pessimism?

It is hoped that this review will help to stimulate thought and action in the direction of a sound tax program and that, if not in 1957, then in 1958, basic tax changes finally will be made, helpful to the country at large and a credit to those who have worked for them.



Good news in the mail from Detroit Edison!

In Detroit, mailman Clayt Bartlett has finished delivery of Detroit Edison's 1956 Annual Report. He's happy, because he's a stockholder, too, and has already studied his copy.

"Makes good reading," says Clayt. "Look here—Edison's utility revenues were $236,722,789 in 1956. That's a new high for the Company. Earned $2.45 a share, and declared $1.85 a share for us stockholders; 20 cents more than in '55. Hasn't missed a quarterly dividend in 48 years. And capacity increased nearly 300,000 kilowatts—totals 2,841,000 kilowatts now.

"That's just off the top of the report. There's lots more—about the increasing industrial growth of Michigan, the new Enrico Fermi atomic power project, and other additions to generating and transmission equipment. Makes good, sound investment reading."

Like a copy? Write the Treasurer . . .

THE DETROIT EDISON CO.

Detroit 26, Michigan

Investing in a better future
for Southeastern Michigan

How Glidden is growing with the big new demand for rubber products

Rubber, which used to be thought of only in terms of "bounce" and "stretch", is now demonstrating that these are unimportant in most rubber products. And, as a result, there has come a great growth in the rubber industry.

Whether for long-wearing floor tile, colorful kitchen accessories, soles for tennis shoes, or white sidewall tires—or a myriad of modern-day rubber products—Glidden contributes color as well as special ingredients for softness or hardness which meet the needs of this growing market.

Every division of The Glidden Company is "in the rubber business". Pigment colors and purest white titanium dioxide come from the Chemicals-Pigments-Metals Division. From Southern Chemical Division come pine tar and rosin oils, used as tackifiers and softeners in rubber. Dipentene is used as a solvent.

Fatty-acid oils, by-products of vegetable-oil refining, come from the Durkee Food Division. The Chemurgy Division produces lecithin for use as a blending and homogenizing agent. And the Glidden Paint Division supplies dressings for tires and other rubber products.

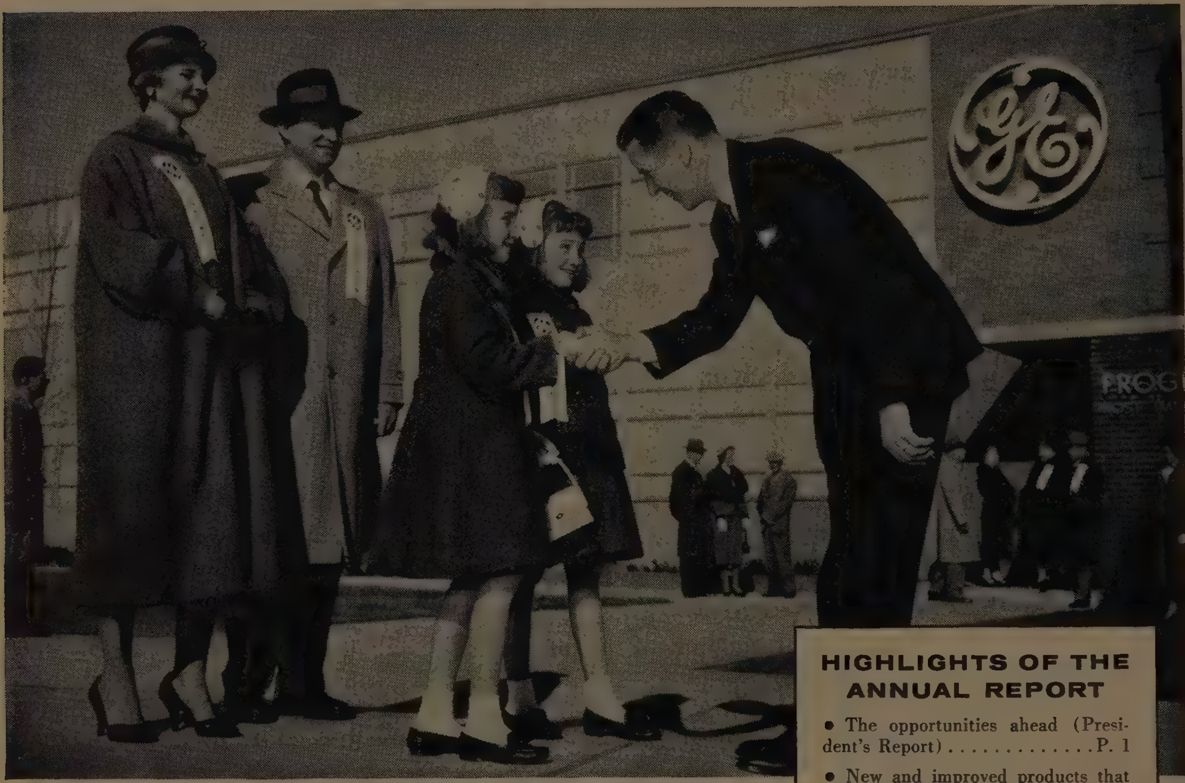
Thus Glidden grows with the expanding rubber industry and its many markets. And this is typical of the way Glidden grows—through helping improve products, develop new ones, or reduce costs for the growth industries Glidden serves. The Glidden Company, Cleveland 14, Ohio.

Growing with the QUALITY **Glidden** PRODUCTS *horizons of chemistry*

CHEMICALS · PIGMENTS · METALS	SOUTHERN CHEMICAL	PAINTS	CHEMURGY	DURKEE FAMOUS FOODS
Pigments and Metal Powders for Industry	Naval Stores; Terpene Chemicals; Resins	For Consumers; Product Finishes; Industrial Maintenance; All Surfaces	Soybean Derivatives; Grain Merchandising	For Food Processors; Restaurants; Consumers

OUT NOW—The General Electric Annual Report discusses

A YEAR OF RECORD PROGRESS



Share owner participation: Open house at a new General Electric plant

General Electric's record of more than $4 billion in sales during 1956 meant progress for many people.

Progress for customers came in new and improved products to help Americans live and work better — electrically. A record 362,122 owners benefitted from increased sales, earnings, and dividends. Employees gained record compensation and benefits, and broader opportunities for self-development. Many thousands of other businesses found mutually rewarding relationships with General Electric: suppliers alone were paid almost half of every sales dollar. And there was progress for every citizen in General Electric's contributions to defense, aid to education and pioneering new fields such as the gas turbine.

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Progress Is Our Most Important Product

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HIGHLIGHTS OF THE ANNUAL REPORT

- The opportunities ahead (President's Report) . . . . P. 1
- New and improved products that helped General Electric appliance sales reach an all-time high . . Pp. 2-3
- News in automation — industrial sales . . . . Pp. 4-5
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If you would like a free copy *of the Annual Report, write Dept. 2-119F, Schenectady, N. Y. If you own General Electric shares held in the name of a broker, or in the nominee name of a bank or trust company, write to Dept. 2-119S, and we will mail you regularly our share owner publications.*

The Nuclear Industry

ROBERT HEDBERG

MANY ANALYSTS HAVE ARGUED that there is no nuclear industry. Even if there is, there are so many statements by industrialists that profits from atomic energy activities are a thing of the future that now there may appear little reason for interest. This is a superficial conclusion. Actually, some very important companies and industries are being changed materially and a heavy foot is on the accelerator, research.

Private research and development expenditures have been estimated by the Atomic Industrial Forum and others at $25,000,000 or better for this year. This is dwarfed by rapidly rising A.E.C. expenditures. For the year beginning July 1, 1957, these are estimated at $71,000,000 for physical research and $36,000,000 for biology and medicine. In addition, every one of the power reactors now being built or planned includes substantial "pilot plant" expense. The impact of this spending is just beginning to be felt.

In 1948, except for the effect of capital expenditures by Government, a private industry did not exist. Today the value of industrial product directly related to nucleonics is large. Leaving out the cost of plants that industry is building to handle the business, the recalculated 1957 totals are: Mining and milling of uranium, $220,000,000; instruments, $30,000,000; power reactor construction, $120,000,000; research and development, other than losses, in the nature of research, on power reactors, $30,000,000; and military reactors, $120 000,000. The expenditure total is $520,000,000. AEC Commissioner Libby says current savings from the use of radioisotopes in industrial processing is $250.000,000 per year. If there were a clear cut nuclear or atomic industry these figures show that it would be one of the most sensational growth industries of the postwar period.

SPENDING AND DEVELOPING RESEARCH

We have arrived on an ascending plateau of spending that may last for two or three years. The construction of power reactors and military reactors really comes in the category of research or early development. This development work is laying the base for a spurt in reactor construction in about 1960. Moreover, in two or three years research should have developed some new applications for heat or radiation, perhaps new products.

Construction contracts for economic domestic power reactors must wait for the answers the current program will disclose. Meanwhile, the business volume will rise due to an attractive though competitive export market, A.E.C. plans for more experimental power reactors, and the first production contracts for military propulsion. These next three years will be prosperous make-ready years.

DEFINING THE INDUSTRY

We define the industry to include those companies that have had or soon will have sales or profits materially improved. The growth in industrial nucleonics has already changed many companies. As time passes the list of companies is rapidly becoming larger. Notice the statement was sales or profits. In this field, as is usual, the profits have not always followed increased sales. The four industry groups most affected during the start-up period will point this out. They are:

The engineering companies,
The instrument companies,
The uranium companies,
Other new metal companies.

Price earnings ratios for the engineering companies have generally risen. Babcock & Wilcox, Newport News Shipbuilding, and General Dynamics are examples. Because higher sales and higher profit margins should result from the greater technological content of their products, some rise in stock market regard is justified. We see continued good business ahead, with possible large increases for the successful companies.

In the boiler manufacture field we are seeing a classical evolution of an industry. A highly engineered furnace (the nuclear reactor) is being substituted for a part of production cost of conventional power plants, the fossil fuel cost. Capital costs are substituted for operating cost. Companies building nuclear reactors require many more highly skilled people than boiler builders. Construction time is a great deal longer, so that working capital needs increase. Facilities also must be built because the demand for generating capacity continues to expand at the same time that the "value added to product" of the reactor builder jumps up sharply.

TRIALS OF SMALLER COMPANIES

It seems obvious that smaller companies will have great difficulty making the necessary changes. Fairbanks Morse, Riley Stoker, and Eliott Company are examples that come to mind. Westinghouse now has booked a back log of atomic activities some say is close to $200,000,000 on which the management believes it will earn little or no profit. Babcock & Wilcox is raising about $20,000,000 with a common stock offering. Yet about two years ago the president of B. & W., Alfred Iddles, said profits were a number of years away. This long-term view toward business growth is not available to those lean in manpower or financial strength.

Though steam turbines will be less affected immediately, further substantial increases in performance conditions are in sight. Nuclear heats are extremely high relative to oil or coal burning heats. Among other variables, the efficiency of a turbine is directly related to the temperature drop between the input and output sides. There is a continuing drive to use these higher fission temperatures. The most advanced turbines now have 1,100 to 1,200 degrees F. intake temperatures. A jump at least to 1,500 degrees F. appears desirable for nuclear power plants.

The instrument companies have not done well. Investors have speculated in the stocks, but in most cases competition and rapid obsolescence have prevented the increases in volume from being carried down to net. There are several reasons for this. One is the small capital requirement of the business and the large number of A.E.C. trained engineers. Garages all over the country became instrument factories. Another is that usually only the instrument's sensing head is unique. Nuclear phenomena have taken their place along with temperature, pressure, rates of flow, and other variables that must be observed. Indeed, the field of instrumentation is rapidly moving toward systems engineering. A company must be prepared to handle an entire industrial process including the installation of a computer to interpret the signals and adjust the process controls. Minneapolis-Honeywell, Beckman Instruments, and Consolidated Engineering are examples of systems instrumentation companies. The small firms, and most of them are small, will have to scramble to survive. There have been a number of mergers and we believe there will be more.

DOMESTIC URANIUM

The domestic uranium business is going commercial. Recent A.E.C. buying policies are forcing integration of mine and mill. Deeper ore bodies will be the rule. The geiger counter and the jeep have been replaced by aerial surveys, extensive core drilling, and large capital needs. Well-managed and adequately financed companies will succeed. We believe the speculative overenthusiasm of two years ago now has gone too far in the opposite extreme.

It bears repeating that there are now 60,000,000 tons of ore in the United States. This ore averages better than ¼ of 1% uranium oxide content. In 1957 production should be at least 4,00,000 tons, so that a fifteen-year reserve is indicated. Value of this ore production of the mine head, including AEC bonuses, we estimate at around $120,000,000 to $140,000,000. This is a larger mining industry than lead or sulphur. While tonnages will increase between now and 1962, in that year the mill price will be $8 per pound of uranium oxide contained after milling. Dollar totals may drop between 1961 and 1962. This price may or may not be economic, but at least we can be sure there is far less subsidy in it than in the present price schedules.

This is a first important step toward a free market. It will force the assembling of larger and higher grade ore-bodies and the scheduling of long mill runs with carefully graded ore. In other words, we have a large dollar volume business now, in which the promotional subsidies of government are being removed and in which, again, size and financial strength make success more likely.

It is easy to generalize about changed companies. Anaconda Company appears to be one about which too much was believed. The February 14, 1957, prospectus indicates that sales of aluminum, zinc, lead, gold, silver, and uranium were only 17% of nine months, 1956, sales of $576,000,000. Foreign copper production and fabricated products are each about two times as important to the company in net sales. The Anaconda Company believes itself to be the largest domestic uranium ore and concentrate producer.

In Canada, huge ore reserves, government contracts, and plants that will be fully paid for from the contracts make an attractive picture. The way demand for nuclear power is shaping up abroad, the world will have to buy its uranium from Canada in the middle 1960's. Present stock prices of contract holding companies contain little risk. In some cases cash generation during the contract period after paying off debt may approach current stock prices. Consolidated Dennison, Gunnar, and Northspan are examples of contract holding companies.

ANALYSTS FAVOR NEW METALS

The new metals companies have been favorites of analysts. Actually, we believe our investment interest has been ahead of the big profits. To our knowledge, little beryllium or beryllium oxide has been used in reactors built in this country. We understand it is used in the Arcos Idaho materials testing reactor and in one or two others, but these are relatively small quantities. The recent $47,000,000 five-year total of contracts is the first private purchase of production quantities for atomic enurgy use. Beryllium Corporation and Brush Beryllium Company have an interesting research opportunity. Whether broader experimentation will find new uses now that producing capacity is being built is the question.

In thorium production contracts have been for stockpile or for experimental purposes. Some commercial orders, for Consolidated Edison's nuclear plant, for example, are near at hand. In lithium Government needs have been large but sporadic, and an excess of capacity has existed from time to time. Zirconium contracts with the A.E.C. will lead to lower prices for the metal. Columbium, which holds promise as an alloying metal in uranium fuel elements, and the rare earths are in even earlier stages of development.

The important facts in the new metals are that new plants capable of volume production are lowering prices, and A.E.C. requirements are building up the industrial experience necessary to work the metals. Not only need for reactor materials but increasing non-atomic uses will amplify demand. Among the companies important in this field are Carborundum, W. R. Grace, Lindsay Chemical, Foote Mineral, Lithium Corporation, Kawecki Chemical, and Fansteel Metallurgical.

ZIRCONIUM

Investment analysts have a specific example of the type of use possible in high temperature applications. Zirconium and hafnium melt above 2,500 degrees F. Columbium melts at about 4,400 degrees F., and tantalum at 5,400 degrees F. A number of the individual rare earths are also high melters. Alloys and metallic compounds containing these metals will continue to receive heavy research effort.

What does the future hold? All this has happened although there is no economic need for the kind of power reactors now being built.

The power market is only one application of the heat of splitting atoms. A leading authority said recently that large volumes of heat can be produced today at prices below that for heavy fuel oil or coal. Hhis study indicated savings of 20 to 60% in combined capital and operating costs. New plants in pulp and paper, sulfur, oil refining and chemical industries are possible users. There are risks in blowing up an engineering study to plant size, but I believe some industrial company management will soon feel the possible savings warrant designing a plant with nuclear process heat.

This statement was by Donald Kollman, nuclear economist, Babcock & Wilcox Company. The Hanford Works is heated by its reactor. General Electric engineers, who designed this waste heat utilization system, are less specific in their optimism but generally confirm Mr. Kollman's interesting conclusions.

At considerably higher process temperatures, Republic Steel is investigating nuclear heat for use in blast furnaces. Likewise, at high temperatures, the Bureau of Mines is experimenting with the gasification of coal. There are undoubtedly other investigations along this line that we do not know of.

NUCLEAR HEAT

Nuclear heat for propulsion is a reality for the Navy. There are at least thirteen naval reactors operating, being built, or contracted for. Eight more will soon be ordered. We believe that by 1962-64 all new naval vessels, except the smallest, will be nuclear powered. Commercial shipping will be slower to change. Large tankers look like the best possibility. Not much in commercial shipping can be done until the experimental ship now under study has operated. Other handicaps are the in port lack of trained people and facilities, as well as the legal and emotional problems involved in bringing a floating reactor into harbors around the world.

Atomic aircraft propulsion is less developed. Regarding beryllium, there is a widespread speculation that present production contracts are for aircraft. Beryllium is both light in weight and an excellent reflector of neutrons.

Nuclear energy is also released as radiation. All of the applications we have discussed are heat applications. We have little experience using radiation except in measuring techniques with radioisotopes. Nuclear radiation is cold energy which penetrates materials. It can, in language we investors understand, tickle or excite the atoms inside materials.

Results have been irradiated polyethelene where the chains of molecules are disturbed and links form between adjoining chains. Result, less elasticity and greater high temperature resistance. Likewise, radiation will vulcanize great thicknesses of rubber, uniformly without the usual vulcanizing chemicals. We have seen the Goodrich Company vulcanize a tire.

In order to understand what may happen in this field, we have to understand first that our greatest radiation testing has been on finished materials. These were ready for use. Our industrial techniques had developed them to their highest state of usefulness. Hence changes caused by radiation altered that state of usefulness and were harmful.

Experimenters are now irradiating materials in process. In the oil, rubber and chemical fields we will see new products or techniques as a result of this process experimentation. Considerable economic advantage will accrue to those who are now acquiring the know how.

It would surely be foolish to believe the Goodrich vulcanization of a tire to be an important positive consideration in evaluating the stock of the company today. Likewise General Electric will be selling only $2,000,000 to $3,000,000 of Irethane, their irradiated polyethelene. However, should we not ask ourselves the question about a company under review, "Are they doing as much as their competitors in atomic energy?" If our answer is no, it may be a negative consideration worth large and increasing weight.

WHAT A FEW YEARS MAY SHOW

In a few years the difference between the companies that are working in nuclear science and those that are not may be as large as between Procter & Gamble and Colgate. P. & G. did go into detergents and Colgate did not. Colgate's sales growth has been much lower, and this past year, in an effort to catch up, strenuous promotion has been undertaken. The resultant drop in profit margins and earnings has caused a large drop in the stock and significant losses for investors who were not alert to this fundamental change.

We believe the risks in nuclear science are as big. However, the possible gains are far greater.

Back Record On Group Indexes OF NEW STANDARD "500" Now Available

In connection with introduction of its new electronically computed hourly and daily indexes of 500 common stocks, Standard & Poor's has recomputed the group indexes for past years, as far back as 1918 for many leading groups. Now on the same 1941-1943 base as the "500," they provide a historical record and background on a basis directly comparable to the new indexes.

The 1957 edition of the Security Price Index Record containing these recomputed indexes, as well as such collateral series as earnings, dividends, and yields, bond prices and yields, preferred stock yields, etc., is now off the press. It is available to subscribers to any Standard & Poor's service at $12.50 a copy, to non-subscribers at $16.50. Write to

Security Price Index Record
Standard & Poor's Corporation
345 HUDSON STREET, NEW YORK 14, N.Y.

From the 73rd Annual Report of
PITTSBURGH PLATE GLASS COMPANY

Producer of Glass · Paints · Chemicals
Brushes · Fiber Glass · Cement · Plastics

"During 1956 the Company set a new record in sales, achieved its second best year in earnings, and reached an average annual employment of 34,983, the highest in its history.

"Company glass, paint, and fiber glass plants operated at or near capacity throughout the year. The expanded merchandising system sold an increasing volume of Company-made and other products to distributors, jobbers, and consumers. Production and sales of the wholly-owned Columbia-Southern Chemical Corporation were at record levels.

"Looking ahead to 1957, the Company expects the demand for many of its products to improve. Because of its additional production facilities, new and improved products, and expanding merchandising units, the Company is in an excellent position to capitalize on increasing markets in our growing economy."

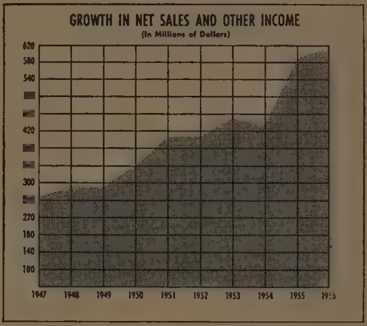
FINANCIAL FACTS

	1956	1955
Net Sales	**$596,573,825**	**$581,966,244**
Earnings Before Taxes	**116,181,729**	**130,933,716**
Taxes on Income	**$ 60,800,000**	**$ 69,500,000**
Net Earnings	**55,381,729**	**61,433,716**
Earnings Per Share	**$5.62**	**$6.26**
Dividends Paid	**27,053,957**	**23,311,124***
Dividends Per Share	**$2.75**	**$2.50***
Current Assets	**$253,711,491**	**$280,612,233**
Current Liabilities	**106,476,412**	**111,006,697**
Working Capital	**$147,235,079**	**$169,605,536**
Total Assets	**$555,328,064**	**$532,143,919**
Capital and Retained Earnings, December 31	**$374,568,873**	**$344,664,706**

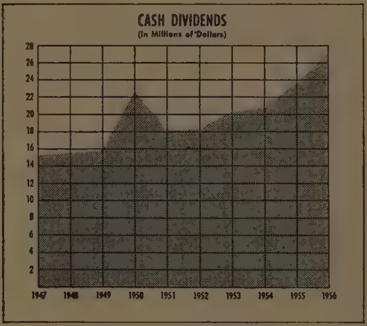
*Does not include 5% stock dividend.

At December 31, 1956, the Company had outstanding 9,850,378 shares of common stock held by 19,468 shareholders, compared with 9,810,687 shares held by 18,236 shareholders at December 31, 1955. The Company and its subsidiaries in 1956 had an annual average employment of 34,983 men and women.

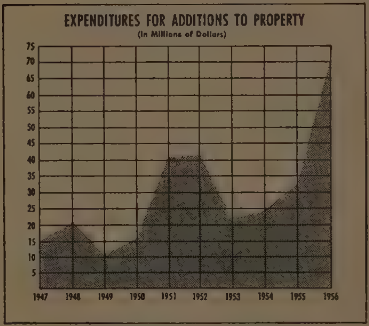
A copy of the Company's Annual Report will be sent upon request to Treasurer, Pittsburgh Plate Glass Company, One Gateway Center, Pittsburgh 22, Pa.


GROWTH IN NET SALES AND OTHER INCOME
(In Millions of Dollars)

NET SALES


CASH DIVIDENDS
(In Millions of Dollars)

DIVIDENDS


EXPENDITURES FOR ADDITIONS TO PROPERTY
(In Millions of Dollars)

EXPENDITURES

PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS · CEMENT · FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

and its wholly-owned subsidiary—COLUMBIA-SOUTHERN CHEMICAL CORPORATION

A Look Ahead for the Chemical Industry

JOHN F. BOHMFALK, JR. and ROBERT L. NEWTON

A YEAR AGO, THE AUTHORS prepared a basic survey of chemical industry which was designed to develop fundamental growth rates for the industry as well as several companies and to project earnings to 1960.

With the perspective gained from an additional year's performance, we find that the study, described herein, still provides a valuable framework or reference point on which to hang an appraisal of future prospects. In the meantime our post mortem must start with the thesis that chemical stocks have performed poorly as lush earnings of 1955 gave way to the competitive days of 1956. In one year, big volume, high profit chemicals as nylon, ammonia, acrylic resins, and styrene were slashed in price, while costs all along the line were being inflated.

After discussing the basic survey, we will again revert to a post-mortem analysis, unprecedented though it is in the annals of security analysis.

BASIC SURVEY

"The third postwar round of capital expansion is now underway. As a result of polling a good number of chemical companies for their views on capital programs for the next 4 years, we find that there is general planning for much larger capital expenditures in 1956 and 1957. Beyond these years, the companies themselves do not know what capital programs will develop. Past experience of erratic ups and downs in capital spending confirms the difficulty of predicting future programs, and points to irregularity of significant research and development contributions and to the fundamentally opportunistic nature of expansion programs.

The Next Five Years: As we see it, the industry is embarking on an $8 billion expansion program over the 1956-1960 period to add 30% more capacity for basic and derivative chemicals. During this period, the Federal Reserve Board index of industrial production will rise at an average annual rate of 4% to about 160 in 1960, while the FRB index for industrial chemicals may be expected to reach 225, rising at an annual rate of 7%. A growing labor shortage will force prices upward. Our price x production index (value of output), shown in Graph 1, will reach an index number of 325 in 1960 for a gain of 50% over 1955.

Capital expenditures for chemicals and allied products, shown in Graph 2, are expected to equal about $1.3 billion in 1956, a gain of almost 30% over 1955. Thereafter, a gradual increase is projected to bring the industry total in line with the trend developed from past experience, or to spending of $1.9 billion during 1960. As a point of reference, this projection for 1960 would then mean that the average company should expect to budget half again as much for 1960 construction as will be spent this year (1956).

Statistical Approach: Our methods of developing targets for production, sales capacity, and earnings forecasts are spelled out in some detail in the Statistical Methods. This study is anchored to forecasts of national production developed by our economist, Ragnar Naess, and to material supplied by the chemical companies with respect to their own plans.

The five-year forecast inevitably assumes a normalized pattern of national growth in production at the approximate annual rate of 4%.

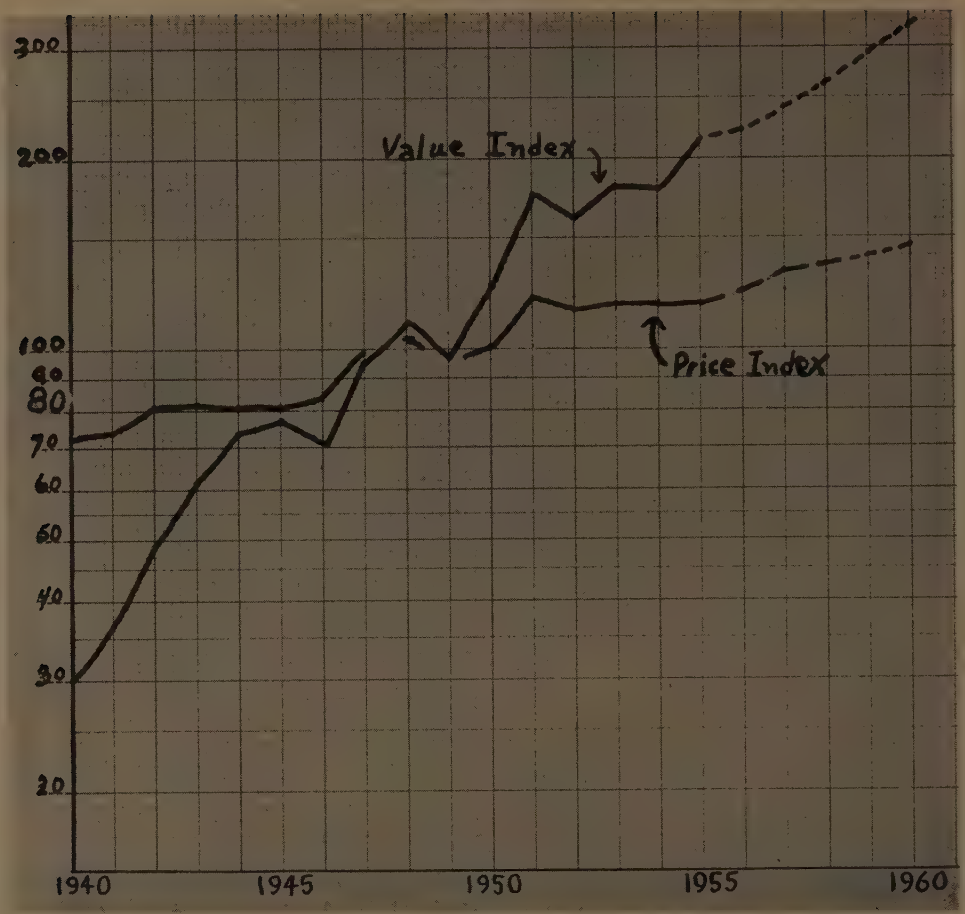
Two problems in particular were encountered. One involved estimates by chemical companies of their capital spending over the period ending 1959. We adopted several approaches to supplement estimates furnished by the companies. One involved the correlation of research and development costs on a cumulative basis (three to as high as six years) with capital expenditures for the following year. Another involved the determination of average percentage a particular company's spending bore to the industry total, then carrying forward the industry total to 1959 in line with past growth trends. Both methods are helpful in suggesting a probable area for capital expenditures on a normalized basis, but results for any one year are hardly predictable.

Evidences of new stability in business, despite fairly pronounced gyrations in production of durable goods as automobiles, suggest that chemical industry should plan further ahead than the customary two years. Construction expenditures should follow more of a growth pattern, obviously within limitations that are imposed by the basically opportunistic nature of the industry and by the irregularities of research accomplishment. But a better balance among the avenues of growth—integration toward raw materials, toward product upgrading, and toward the consumer—can surely be attained in such a way as to optimize forward progress.

Another problem to which we gave serious consideration is that of growth in sales attributed to price inflation and to changes in the product mix. The Department of Labor wholesale price index for industrial chemicals has advanced since the early 1940's at an annual rate of 3.6% a year. We note that Du Pont's sales growth from 1946 through 1955 equalled 13% compounded annually, whereas the physical volume of sales increased 9.2% annually. The difference of 3.8% may largely be attributed to price inflation coupled with changes in the product mix toward higher prices per unit of volume by reason of upgrading. Thus, our value of output incorporates a growth factor to compensate for inflation. The combination of growth in physical volume (7% annually for the FRB index) and in price inflation (3½% annually for the Department of Labor wholesale price index) produces an industry growth of 10½% yearly for industrial chemicals.

Growth Trends: Factors affecting growth trends of net income per share include income tax rates and depreciation

GRAPH I



charges. It may be argued that income taxes are a cost of doing business, but the fact remains that Union Carbide, for example, figures their growth in pretax earnings has historically averaged 10% annually, whereas after tax earnings have growth at the rate of 8%.

Depreciation policies have a tremendous bearing on reported net income. For example, Dow's depreciation in the early 1930's equalled only 40% of net per share of common stock outstanding, but in 1955 it was 200% of reported net, for an overall growth rate of 19% a year. Thus the general acceleration in annual depreciation and amortization accruals has affected the growth of net income. Our studies of growth to 1960 allow for recent changes in depreciation policies to include sum-of-the-digits or declining-balance as indicated by the companies to provide estimates of depreciation charges for 1960. As a rule, aggregate depreciation charges for most companies are found to increase very slightly to moderately over the next five years.

With indications of stable tax rates for the next five years and of almost level depreciation charges, growth in net income should proceed at a faster rate than the experience of the recent past. Basically, growth is derived from reinvestment of cash earnings and dividends, however, at the present time (1956), the sum of available money for reinvestment (through annual cash accruals of depreciation and retained earnings) exceeds budgets for capital expenditures in the cases of Du Pont, Union Carbide, Dow, Spencer, and Monsanto.

While we are primarily concerned with the growth in net income available to the common stockholder, we also are interested in detecting changes in any factors which would affect net income. One which is causing concern is the slowing rate of capital re-investment which has so far been offset by gains in profitability through price increases and product upgrading. A measure of the reduction in rate of capital growth is provided in our estimates that chemicals capacity will increase only 30% in the next five years versus the 45% growth in the five year period ended 1955. On the other hand, net income per share should improve 60% on the average over the next five years, exactly double the improvement registered from 1950-1955. These data are derived from published earnings for 1950 and 1955, in both of which years chemical industry operated at about 84-85% of capacity, while 1960 estimates are made under the assumption of industry operation at 78-79% of capacity. At 86% of capacity in 1960, earnings would be double those reported for 1955.

The apparently contradictory conclusion of a more modest growth in chemicals capacity additions yet an accelerating gain in earnings are inter-related to the extent that increases in fast depreciation accruals, resulting from application of the newer accounting methods, will be limited by the modest rate of capital expenditures. Thus net income will not be so severely penalized as it would be if construction programs were markedly accelerated, and net income will also be relieved in 1960 of the burden of 5-year accelerated amortization. Tax rates are assumed to be unchanged."

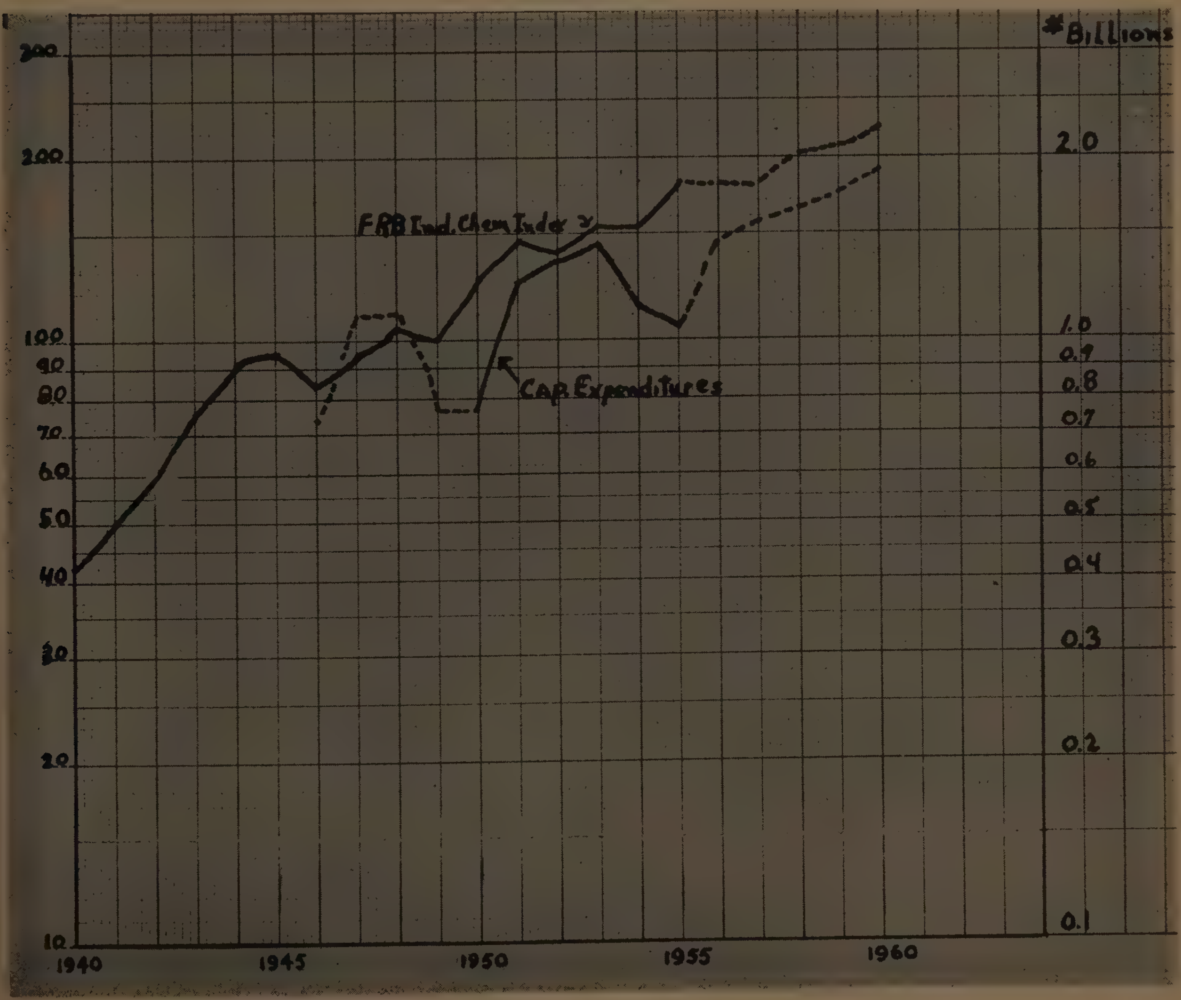
POST MORTEM

Now that we have exposed a vulnerable position, we must defend that position.

First, we have developed charts of per share earnings for a number of companies, extending the record back to 1929 if possible. By exponential equation, we determine the trend line of the data, and calculate the slope to produce the straight line growth rate. Inspection of the chart shows earnings crossing above and below the trend line many times over a 27-year period. While earnings of most companies in 1955 were above the trend line, in most cases they fell below in 1956. The odds are good that earnings will again cross the trend line in the future. Also, most companies show a consistent and regular trend of earnings growth over an extended period, and the chemical industry is far from a mature industry.

Second, rather selective price cutting in key products caused some of the damage to 1956 earnings, while the inflationary impact of the steel strike and resulting wage adjustments caught the chemical industry with its prices down. Unlike the steel, rubber, petroleum, or numerous other industries, the chemical industry cannot tack on a flat base price increase or increases in the form of extra charges on a composite and homogeneous product line. Rather, price adjustments start with basic chemicals and

GRAPH II



STATISTICAL POSITION

Company	Earnings/Share		Projected 1960 Earned Per Share						Growth in Cash Earnings Per Share				
			Operating Rate			% Increase 1960 vs. 1955 @						% Gains	
	1955	1956	70%	78%	86%	70%	78%	86%	@ 84% 1950	@ 84½% 1955	@ 86% 1960	1950-1955	1955-1960
Air Reduction	$ 3.21	$ 4.12	$ 3.55	$ 4.85	$ 6.50	6%	51%	102%	$ 4.76	$ 5.98	$ 8.70	26%	45%
Allied Chemical	5.26	4.74	6.35	8.45	10.60	20	60	101	5.78	9.15	15.65	58	71
American Cyanamid	4.07	4.21	4.05	5.95	8.10	. .	46	99	6.14	7.40	11.87	21	60
Atlas Powder	4.70	5.61	4.95	6.45	8.50	5	37	81	6.31	7.59	14.40	20	89
Diamond Alkali	3.14	3.83	2.90	4.50	6.25	(8)	43	99	3.69	7.30	10.65	101	46
Dow (A)	2.11(A)	2.28(A)	3.60	4.80	5.90	71	127	179	2.49	5.30	8.65	113	63
Du Pont (ex. G.M.)	9.26	8.20	7.50	9.35	11.30	15	44	74	5.81	9.10	14.60	57	60
Eastman Kodak	4.66	5.13	5.40	6.35	7.50	16	36	61	4.41	6.53	10.00	48	53
Hercules	2.30	2.13	2.90	3.80	4.75	26	70	107	2.70	3.87	7.20	43	86
Hooker	1.72	1.75	2.20	2.80	3.40	28	63	98	1.85	2.72	4.90	47	80
Monsanto	1.96	1.80	2.06	2.85	3.60	5	45	84	2.74	3.80	5.30	39	39
Pennsalt	2.80	2.92	2.80	4.45	6.20	. .	58	121	6.08	7.15	13.30	18	86
Rohm & Haas	16.72	15.21	22.20	29.10	38.10	31	72	125	10.52	24.90	49.60	137	99
Stauffer	3.96	3.97	4.30	6.00	7.85	9	51	98	4.65	6.77	11.30	46	66
Union Carbide	4.83	4.86	6.10	7.90	9.75	26	64	102	5.44	8.48	13.25	56	56
Victor	2.16	N.A.	2.00	2.75	3.50	(7)	27	62	3.16	4.24	6.55	34	55

( ) = Negative.
(A) Converted to approximate calendar year basis.

move through intermediates to finished products by stages. The time lag involved effectively caused a decline in third quarter earnings, and also a serious downward adjustment in earnings of many chemical companies for 1956. While selective price cutting is always a factor, reference to a definitive article in Industrial and Engineering Chemistry of February, 1957, on "Chemical Prices: A New Index," by Schuman and Alpert, suggests a long-term moderate uptrend in industrial chemical prices. Additionally, there is no reason to change our concept that continual product upgrading effectively increases the average price per pound of total output.

Third, predictability of capital expenditures is still a source of prime concern. While we escalated capital spending through 1959 on a gradual basis corresponding to long-term growth trends, chemical industry accelerated its capital program during 1956 and 1957, but will probably let down the pace of constuction in 1958 and 1959. Net effect then is quite likely to be the same for the full five-year program, starting in 1955. However, the progressive effect on earnings is altered appreciably, in that depreciation charges under faster methods of write-off will build up in the earlier years. Also, we believe that plant start-up costs and non-productive charges accumulate in years of accelerated construction programs. The net effect is a tendency toward narrower pretax profit margins. The long-term result, certainly in the case of cash earnings, is unchanged, however, while net earnings are affected to a very minor degree. Certainly the dominating variable is still the business picture during 1960, and our range of assumptions governing this situation is sufficiently broad to cover a multitude of errors.

Fourth, we look forward to a post post-mortem discussion of 1960 earnings in these columns circa 1961.

APPENDIX—STATISTICAL METHODS

The fundamental objective of this study is first to isolate and define those factors that affect net income, then assign estimated values to those components and calculate expected earnings per share. Net sales provides the basis for calculation and is projected by two different procedures.

I. *Construction of Value of Output:* By multiplying the FRB index for production of industrial chemicals by the BLS price index for industrial chemicals (and dividing by 100) an index is obtained that measures the value of products produced. For future years the FRB index for production of industrial chemicals is correlated with the FRB for industrial production. The price index is projected by plotting values on semi-logarithmic paper and fitting a trend line.

II. *Sales Projections:*

a. *Correlation with Value of Output.* Estimated 1960 sales for individual chemical companies are determined by a direct graphic correlation with the value index. Since the value of output projection is developed from a trend line, the resulting sales figure is a trend or "average" value and corresponds to 78% of sales capacity, as described in (II b). This method was largely used as a check on method II b.

b. *Correlation with Anticipated Capital Expenditures.* The second method of sales projection relates expected capital expenditures to a value of sales that might result. Values for sales capacity in 1955 are either estimates supplied by the particular companies or informed guesses. Sales capacity in 1946 is obtained in most cases by dividing 1946 sales by 0.85. The difference in sales capacity, corrected for price inflation by adjusting 1946 sales capacity to 1955 dollars, between the years 1955 and 1946 (9 years) is divided by the sum of the capital expenditures from 1946 through 1954 (9 years), to provide a ratio of sales capacity produced by $1.00 of capital expenditure. To determine the 1960 sales capacity, this ratio (or a more suitable one suggested by the company) is multiplied by the sum of the expected capital expenditures for the years 1955 through 1959. This result, when added to the 1955 sales capacity, yields the expected 1960 sales capacity (a one-year lag is assumed between the time of expenditure and availability of new capacity) in 1955 dollars. Using a predicted value of 145 for the industrial chemical price index for 1960, the capacity is converted into 1960 dollars. To calculate actual sales 78% of capacity is assumed to represent an average year, with 70% and 86% used for periods of low and high levels of industrial activity, respectively. The 1960 sales at 78% of capacity is theoretically comparable to correlation results in Method II a and in actual practice agreement is quite good in most cases.

III. *Operating Profit Margins:* Profit margins are computed before Federal income taxes and depreciation, and are plotted for a period of 10 years. The graphs are analyzed to obtain suitable profit margins at different levels of production. In general the operating profit margin at 70% of capacity is taken as the lowest value realized since 1950, and 86% of capacity profit margins as the highest value after 1951. The profit margin for 78% capacity is the average of the two extremes.

IV. *Depreciation:* Depreciation for 1960 is calculated by first separating current depreciation into categories of normal, rapid amortization and sum of the digits or double declining balance. Each of these categories is projected to 1960 based on the expected policy of the company regarding new depreciation methods. Rapid amortization generally drops out by 1960 except where company projections give an estimated value for this period. Average plant life on new capital expenditures is usually considered to be 20 years except in special cases where composite rates used by the companies produce different depreciation schedules.

V. *Net Income:* Predicted sales for 1960 at various levels of sales capacity are multiplied by appropriate profit margins to obtain the gross operating profit. Depreciation and interest are subtracted, and non-operating income is added to obtain net income before taxes. Income taxes are computed from an average of the particular company's tax rates for 1954 and 1955. The resulting net after taxes is divided by the number of shares of common stock outstanding to obtain earnings per share. Capitalization in most cases is assumed to be the same as that existing at the end of 1955, except that in cases where convertible securities are outstanding, per share calculations are based on complete conversion.

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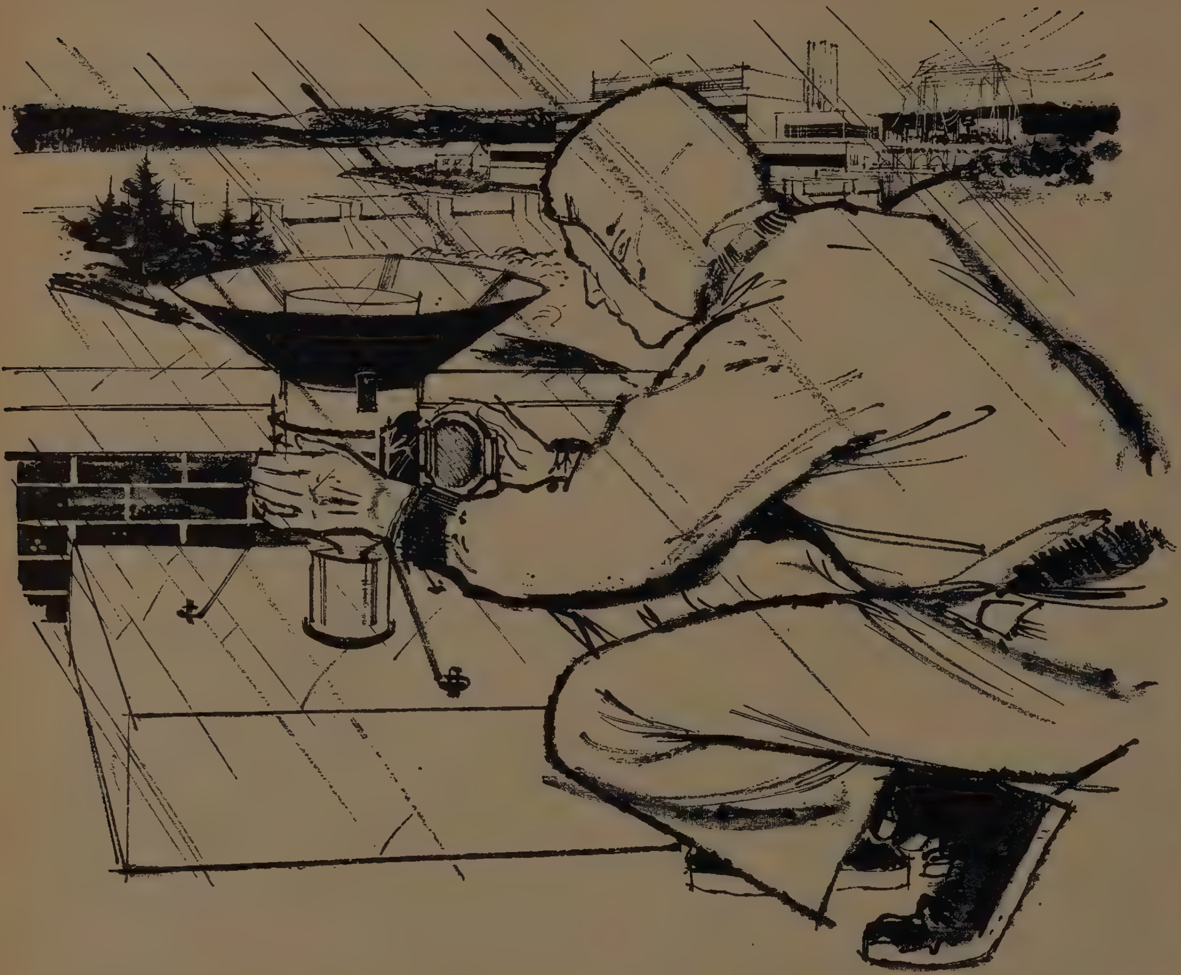

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What About Public Utility Capitalization Ratios?

C. A. HOSKIN

IN THE PAST THERE HAS BEEN considerable discussion and a wide variance of opinion as to whether there is an "optimum" capitalization ratio for public utility companies. Recently the Securities and Exchange Commission revived the interest in the problem by asking the various analysts' organizations throughout the country and other interested parties to comment on the idea of the Commission's adopting a minimum ratio for the common stock and surplus portion of the capitalization ratio.

Over the years much has been written on this subject, so let us consult the experts to see whether there is any agreement of opinion and then let us examine data of some of the many companies operating in this field to ascertain if we can arrive at a common yardstick by which analysts and management may be guided.

Messrs. Graham and Dodd in their textbook, *Security Analysis,* Third Edition, dated 1951, state: ". . . In our discussion of fixed-income securities, it is suggested that the maximum desirable debt ratio for utilities should be set at 65% of the net plant account in the case of a company that has debt and common stock outstanding, but no preferred stock. When preferred stock is included in the capital structure the debt ratio should be somewhat lower in order to give the preferred stock an investment rating.

"Expressed in terms of total capitalization and surplus, the debt ratio would automatically be somewhat lower, since, for a typical company, capitalization and surplus (which reflects the inclusion of net current and other assets) will aggregate about 10% higher than the figure for net plant. This suggests that the maximum amount for debt expressed in terms of total capitalization and surplus should be about 60% if the company has no preferred stock outstanding. It is prevailing practice, however, for utility companies to issue preferred stock, and when this is done we would suggest that the optimal capital structure would consist of

Bonds	50%
Preferred Stock	15
Common Stock and Surplus	35
Total	100%

". . . Under certain conditions a considerably higher debt ratio may be justified, but in this event provision should be made for its subsequent reduction, either through the operation of a sinking fund or by financing further property expansion with equity capital.

"The proposed ratios accord closely with those that are apparently viewed favorably by the SEC and with those that are considered desirable by experienced utility analysts."

In the "Analysis of Public Utility Securities," by Thatcher C. Jones, Professor of Finance, Graduate School of Business Administration, New York University, as related in *Fundamentals of Investment Banking,* published by the Investment Bankers Association of America in 1947, Mr. Jones says:

"The question arises as to what is a desirable ratio of funded debt to total capitalization.

"There have been various standards suggested. An idea would be roughly 50 per cent. However, if there are no preferred stock issues outstanding, that percentage could be increased to as much as 60 per cent. The Securities and Exchange Commission indicated that they regarded as ideal a capital structure of 50 per cent in bonds, 25 per cent in preferred stock, and 25 per cent in common stock and surplus. This may be used as a fairly adequate standard of comparison. Thus, if a company fits into that pattern, or approaches it, we can say that its capital structure is pretty much in line with the company-accepted practice, and meets with the general viewpoint, at least, of the Securities and Exchange Commission."

George D. Freeman, a public utility specialist for Van Cleef, Jordan & Wood, investment counsel, writing on "Problems of Utility Common Stock Analysis" in *The Analysts Journal* of November 1953, states:

A RESULT OF HIGH LEVERAGE

"The SEC has taken cognizance of this fact (high leverage of some utility companies—Ed.) and has, therefore, limited most utilities to a minimum of 25% common equity. In practice, the theoretical capitalization given in the example, 50% debt, 20% preferred equity, and 30% common equity, is close to the lower limit for most conservatively run utilities. The ratios that management considers it advisable to maintain may vary from time to time. In cases where it has been found expedient to increase the percentage of debt, as in many utilities ranging in size from Consolidated Edison to Missouri Public Service, increased earnings have accrued to the common stockholder, or the effect of declining net operating income is masked and earnings per common share may remain nearly constant for a period in the face of lessening net. Conversely, with companies like Pennsylvania Power and Light or Long Island Lighting, where it has been expedient to reduce the debt ratio and build up the percentage of common equity, the earnings per common share have not been increased so rapidly as net operating income. Capitalization ratios usually change little, but, since the effect is important, situations that permit or require such a change should be carefully watched for by the analyst."

Many more sources of information might be consulted but we think the foregoing presents sufficient evidence for us to assert that there is no common conclusion concerning a minimum and/or optimum capitalization ratio. Furthermore, there seems to be a lack of common understanding as to what the Securities and Exchange Commission considers to be an acceptable or desirable ratio. In general, however, we might conclude that the lower the common

EXHIBIT I

	Bonds	Preferred	Common & Surplus
High Bonds - Southwestern Public Service	60.0%	9.7%	30.3%
Low Bonds - Central Illinois Light	34.4	22.1	43.5
High Common & Surplus - Puget Sound Power & Light	39.3	-	60.7
Low Common & Surplus - Pennsylvania Power & Light	53.4	18.0	28.6

EXHIBIT II

Company	Common & Surplus % of Capitalization	12-31-56 Price Times 1956 Earnings	1956 Dividend Yield	Dividend Per Cent of Earnings
Pennsylvania Power & Light	28.6%	13.3x	5.45%	72.3%
Southwestern Public Service	30.3	14.5	5.15	74.9
Kansas City Power & Light	33.3	14.1	5.13	72.5
American Gas & Electric	34.3	18.2	3.76	68.5
Illinois Power & Light	35.0	14.0	4.64	65.0
Indianapolis Power & Light	37.8	13.4	5.09	68.2
Idaho Power Company	38.5	14.2	3.87	55.0
Houston Lighting & Power	40.0	17.9	2.80	50.0
Carolina Power & Light	41.1	14.0	4.78	67.1
Ohio Edison Company	43.6	13.2	5.04	66.5
Commonwealth Edison Company	45.8	14.3	5.13	73.5
Hartford Electric Light	48.8	14.1	4.97	69.9

stock equity ratio the more vulnerable the company becomes to changes in the business climate.

AN APPROACH TO THE PROBLEM

Another approach to the problem, as we see it, is to conduct a detailed study of current data concerning power and light companies to learn whether differing capitalization ratios produce predictable results.

Below are presented data of the many well-known public utility companies operating in the electric power and light industry, companies conducting both electric and gas operations, and holding companies in both categories. In some instances there is a certain minor overlap of operations but in each case the companies have been classified according to their major operations. Data are as of December 31, 1956, except as indicated.

RATIOS VARY

The purpose of this lengthy tabulation is to indicate the lack of uniformity and the absence of any set pattern in capitalization ratios. While it is true that no company listed has a percentage of funded debt above 60% nor a common stock and surplus per cent much below 30%, the ratios do vary widely as is indicated by the upper and lower limits shown in exhibit I.

However, we do not think Southwestern Public Service should be classified as the most speculative company in the list because of its having the highest debt ratio nor do we believe that Pennsylvania Power & Light is in the same category because of its low common stock and surplus ratio per se. Conversely, Central Illinois Light may not be the most attractive because of its low debt ratio or similarly Puget Sound Power & Light because of its high percentage of common stock and surplus. Many other factors must be taken into consideration, some of them would tend to offset the capitalization ratios while others might accentuate them. Others would have no relationship whatsoever and in all probability might be much more important in the evaluation of power and light securities. To elaborate on this idea we tabulate in exhibit II data on several companies selected from exhibit I.

This tabulation lists 12 companies chosen from the complete group with common stock equity ratios ranging from 28.6% to 48.8% of total capitalization. It can readily be seen that there is no correlation between the percentage of capitalization represented by common stock and surplus and the other ratios which are commonly used in analytical work for comparative purposes.

For example, Kansas City Power & Light, with a common stock and surplus ratio of 33.3% sold at 14.1 times

Electric Light & Power - Operating	Capitalization Per Cent of Total Bonds	Preferred	Common & Surplus	Price Common 12-31-56	1956 Earnings Per Share	Price times Earnings	1956 Divi-dends per Share	Divi-dend Yield	% of Pay Out
Atlantic City Electric	48.8%	19.6%	31.6%	27	$1.66	16.3x	$1.20	4.44%	72.3%
Boston Edison Company	42.6	6.8	50.6	50	3.45	14.5	2.80	5.60	81.2
*Carolina Power & Light (7-31-56)	44.2	14.7	41.1	23	1.64	14.0	a1.10	4.78	67.1
Central Hudson Gas & Electric	49.2	16.5	34.3	16	1.10	14.5	0.79	4.94	71.8
Cleveland Electric Illuminating (9-30-56)	44.3	8.1	47.6	39	2.60	15.0	1.60	4.10	61.5
Columbus & Southern Ohio Electric (+ Bus)	52.6	11.6	35.8	29	2.23	13.0	1.60	5.52	71.7
Commonwealth Edison Company	51.0	3.2	45.8	39	2.72	14.3	2.00	5.13	73.5
Consolidated Edison Company of New York	49.2	10.9	39.9	45	3.20	14.1	2.40	5.33	75.0
*Delaware Power & Light (9-30-56)	44.1	21.0	34.9	46	2.50	18.4	1.57½	3.42	63.0
*Detroit Edison Company (6-30-56)	55.7	-	44.3	38	2.36	16.1	1.80	4.74	76.3
Duquesne Light Company	47.7	17.9	34.4	35	2.44	14.3	1.90	5.43	77.9
Empire District Electric (9-30-56)	50.1	17.9	32.0	21	1.59	13.2	b1.10	5.24	69.2
Florida Power Corporation	55.8	12.2	32.0	52	2.86	18.2	1.65	3.17	57.7
*Florida Power & Light (9-30-56)	49.0	12.0	39.0	48	2.59	18.5	1.22	2.54	47.1
Hartford Electric Light	40.6	10.6	48.8	58	4.12	14.1	2.88	4.97	69.9
Houston Lighting & Power	56.1	3.9	40.0	50	2.80	17.9	a1.40	2.80	50.0
Idaho Power Company	45.3	16.2	38.5	31	2.18	14.2	1.20	3.87	55.0
Indianapolis Power & Light (Preliminary)	49.8	12.4	37.8	28	e2.09	13.4	1.42½	5.09	68.2
Kansas City Power & Light (12-31-55)	44.1	22.6	33.3	39	2.76	14.1	2.00	5.13	72.5
Kansas Gas & Electric (9-30-56)	51.8	19.5	28.7	27	2.24	12.1	1.23	4.56	54.9
Minnesota Power & Light	51.0	13.1	35.9	27	2.09	12.9	1.40	5.19	67.0
zNorthern States Power (Minn.)	44.3	21.2	34.3	17	1.21	14.0	0.90	5.29	74.4
*Ohio Edison Company (10-31-56)	41.4	15.0	43.6	50	3.79	13.2	2.52	5.04	66.5
*Oklahoma Gas & Electric (11-30-56)	46.8	17.0	36.2	39	2.46	15.9	1.70	4.36	69.1
#Pennsylvania Power & Light (12-31-55)	53.4	18.0	28.6	44	3.32	13.3	2.40	5.45	72.3
Potomac Electric Power (9-30-56)	56.7	4.7	38.6	22	1.54	14.3	1.10	5.00	71.4
Public Service Company of Indiana	46.0	18.2	35.8	37	2.46	15.0	2.00	5.41	81.3
Puget Sound Power & Light	39.3	-	60.7	26	1.67	15.6	1.26	4.85	75.4
Southern California Edison	47.6	15.7	36.7	46	3.46	13.3	2.40	5.22	69.4
Southwestern Public Service (8-31-56)	60.0	9.7	30.3	26	1.79	14.5	1.34	5.15	74.9
Tampa Electric Company	48.6	12.8	38.6	30	1.66	18.1	1.05	3.50	63.3
Toledo Edison Company	49.6	20.2	30.2	13	1.01	12.9	0.70	5.38	69.3
*Union Electric Company (12-31-55)	52.9	13.1	34.0	26	1.70	15.3	a1.43	5.50	84.1
Utah Power & Light	57.3	-	42.7	25	1.70	14.7	1.10	4.40	64.7
Washington Water Power (7-31-56)	56.0	-	44.0	36	2.29	15.7	1.82	5.06	79.5

	Capitalization Per Cent of Total								
Electric Power & Gas - Operating	Bonds	Preferred	Common & Surplus	Price Common 12-31-56	1956 Earnings per Share	Price times Earnings	1956 Dividends per Share	Dividend Yield	% of Pay Out
Baltimore Gas & Electric	49.7%	8.4%	41.9%	33	$2.32	14.2x	$1.60	4.85%	69.0%
Central Illinois Light (10-31-56)	34.4	22.1	43.5	54	3.86	14.0	2.60	4.81	67.4
Central Illinois Public Service (9-30-56)	48.4	15.9	35.7	30	2.29	13.1	1.60	5.33	69.9
Cincinnati Gas & Electric	45.9	11.1	43.0	26	1.99	13.1	a1.20	4.62	60.3
Consumers Power Company	45.8	13.2	41.0	46	3.33	13.8	2.20	4.78	66.1
Dayton Power & Light (‡ Water)	47.3	14.4	38.3	49	3.81	12.9	2.25	4.59	59.1
Gulf States Utilities	53.3	15.6	31.1	36	2.21	16.3	1.60	4.44	72.4
Illinois Power Company (‡ Bus)	49.1	15.9	35.0	56	4.00	14.0	2.60	4.64	65.0
Iowa Illinois Gas & Electric	46.5	12.2	41.3	32	2.41	13.3	1.80	5.63	74.7
Kansas Power & Light	49.2	18.2	32.6	23	2.01	11.4	1.20	5.22	59.7
*Long Island Lighting (10-31-56)	51.9	16.1	32.0	23	1.51	15.2	1.07½	4.67	71.2
Louisville Gas & Electric (9-30-56)	45.0	14.9	40.1	28	1.88	14.9	1.05	3.75	55.9
Montana Power Company (10-31-56)	47.5	15.2	37.3	42	3.23	13.0	1.80	4.29	55.7
New York State Electric & Gas	46.7	14.4	38.9	37	3.00	12.3	2.00	5.41	66.7
Niagara Mohawk Power	51.5	13.9	34.6	30	2.13	14.1	1.80	6.00	84.5
Pacific Gas & Electric (9-30-56)	46.0	19.4	34.6	50	3.37	14.8	2.35	4.70	69.7
Philadelphia Electric (12-31-55)	47.9	12.5	39.6	38	2.59	14.7	1.80	4.74	69.5
Public Service Electric & Gas	53.0	8.7	38.3	32	2.10	15.2	1.80	5.63	85.7
Rochester Gas & Electric (9-30-56)	43.8	21.9	34.3	29	2.23	13.0	b1.36	4.69	61.0
San Diego Gas & Electric	46.7	12.6	40.7	21	1.51	13.9	0.88	4.19	58.3
South Carolina Electric & Gas	58.0	11.3	30.7	19	1.51	12.6	0.97½	5.13	64.6
Virginia Electric & Power	52.3	13.3	34.4	44	2.78	15.8	1.75	3.98	62.9
Wisconsin Electric Power (9-30-56)	49.9	10.5	39.6	32	2.44	13.1	1.60	5.00	65.6
Electric Light & Power - Holding				Consolidated Statements					
American Gas & Electric	55.9	9.8	34.3	37	2.03	18.2	a1.39	3.76	68.5
Central & South West Corporation	51.6	13.3	35.1	35	2.32	15.1	1.45	4.14	62.5
General Public Utilities	47.1	12.9	40.0	35	3.05	11.5	c1.82½	5.21	59.8
Middle South Utilities (8-31-56)	53.9	11.8	34.7	31	2.18	14.2	1.50	4.84	68.8
Southern Company	52.7	12.8	34.5	21	1.53	13.7	1.00	4.76	65.4
z*Texas Utilities Company (12-31-55)	45.2	16.5	38.2	40	2.34	17.1	1.28	3.20	54.7
zWest Penn Electric (9-30-56)	52.9	16.1	30.1	27	2.15	12.6	1.42½	5.28	66.3

Electric Power & Gas - Holding	Capitalization Per Cent of Total Bonds	Preferred	Common & Surplus	Price Common 12-31-56	1956 Earnings Share	Price times Earnings	1956 Dividends per Share	Dividend Yield	% of Pay Out
				Consolidated Statement					
zNew England Electric System (9-30-56)	56.3%	8.7%	33.6%	17	e$1.26	13.5	$1.00	5.88%	79.4%

* - Adjusted for subsequent financing
# - Adjusted for merger with Scranton Electric Company in January, 1956
z - Minority Interest - Northern States Power (Minn.) - 0.2%; Texas Utilities - 0.1%; West Penn Electric - 0.9%; New England Electric System - 1.4%
a - Plus stock dividend
b - Adjusted for stock split
c - Including extra dividends
e - Estimated

1956 earnings on December 31, 1956. Idaho Power with a higher ratio of 38.5% of total capitalization represented by common stock and surplus, sold at a similar ratio of 14.2 times 1956 earnings on the same date while Hartford Electric Light with common and surplus totaling a still higher ratio of 48.8% of capitalization was quoted at 14.1 times 1956 earnings at the 1956 year-end.

RELATED COMPARISONS

Another related comparison would group together Pennsylvania Power & Light (28.6% common and surplus) selling at 13.3 times earnings, Indianapolis Power & Light (37.8%) selling at 13.4 times earnings and Ohio Edison (43.6%) selling at 13.2 earnings.

Likewise, the percentage of common stock and surplus to total capitalization appears to have no relationship to dividend yield since Southwestern Public Service (30.3%) yielded 5.15% based upon 1956 dividend payments and its selling price at December 31, 1956; Indianapolis Power & Light (37.8%) yielded 5.09% and Commonwealth Edison Company (45.8%) returned 5.13%.

Study of the percentage of earnings paid out as dividends shows a similar lack of correlation. In fact, the table indicates that, with the exception of Idaho Power Company and Houston Lighting & Power, both serving highgrowth areas and currently in need of retained earnings to finance large expansion programs, all of the companies listed paid out between 65.0% and 74.9% of earnings as dividends regardless of capitalization ratios.

To avoid the accusation that we have picked these companies with extreme care, we have grouped together all of the 66 companies included in the study classified according to the percentage common stock and surplus bear to total capitalization. On the next page is a tabulation of the averages and the upper and lower limits for the several groups.

Careful scrutiny of these data will point out that with certain exceptions because of special conditions, there appears to be no clear-cut correlation between a low or a high ratio of common stock and surplus to total capitalization and the other factors which are included in the table presented.

It is of interest to note that Florida Power & Light with a common surplus ratio of 39.0% sold at the highest price times earnings ratio—18.5 while at the same time it was quoted at the lowest dividend yield—2.54% and also distributed the lowest percentage of earnings—47.1%. Kansas Power & Light with one of the lowest common stock and surplus ratios at 28.7%, sold at the lowest price times earnings ratio—11.4 times. At the same time, however, Pennsylvania Power & Light with a common and surplus ratio of 28.6%, slightly lower than Kansas Power & Light, sold at 14.1 times 1956 earnings, not far below the average of all companies. Niagara Mohawk Power, while yielding the highest dividend return at 6.00%, had a common ratio of 34.6% and Public Service Electric & Gas, paying out the highest percentage of earnings as dividends at 85.7% was likewise neither high nor low in common capital ratios at 38.3%.

All of the above studies and exhibits reveal, quite con-

Common & Surplus Ratio Between	Number of Companies Included	Price x Earnings			Dividend Yield			Per Cent Pay Out		
		Average	Limits High	Low	Average	Limits High	Low	Average	Limits High	Low
Below 30	2	12.7x	13.3x	12.1x	5.01%	5.45%	4.56%	63.6%	72.3%	54.9%
30 - 35	24	14.6	18.4	11.4	4.85	6.00	3.17	69.6	84.5	57.7
35 - 40	21	14.4	18.5	12.3	4.67	5.63	2.54	66.3	85.7	47.1
40 - 45	14	14.3	17.9	13.1	4.62	5.63	2.80	65.4	79.5	50.0
45 - 50	3	14.5	15.0	14.1	4.73	5.13	4.10	68.3	73.5	61.5
Above 50	2	15.1	15.6	14.5	5.23	5.60	4.85	78.3	81.2	75.4
All Companies	66	14.4	18.5	11.4	4.75	6.00	2.54	67.9	85.7	47.1

clusively we believe, that there is no optimum capitalization ratio for all public utility companies. It would appear that, within certain rather indefinite limits, one company may report just as good results with a so-called "low" ratio of common stock and surplus to total capitalization as another company with a substantially "stronger" ratio.

A further conclusion, in our opinion, is that many other factors, including current earnings and dividends, long-term earnings trend, the rate of growth of population in the territory serviced, the rate structure prescribed by state commissions or other regulatory bodies and the need of capital for expansion of facilities plus other similar factors, exercise more influence upon the quality of a public utility company's securities than does its capital structure.

Perhaps we have been devoting too much attention to capitalization ratios in the past and not enough to other more important determining factors in our analyses of public utilities securities.

PACIFIC GAS and ELECTRIC Co.

DIVIDEND NOTICE

Common Stock Dividend No. 165

The Board of Directors on March 13, 1957, declared a cash dividend for the first quarter of the year of 60 cents per share upon the Company's common capital stock. This dividend will be paid by check on April 15, 1957, to common stockholders of record at the close of business on March 25, 1957.

K. C. Christensen, Treasurer

San Francisco, California

GOOD YEAR

DIVIDEND NOTICE

The Board of Directors today declared the following dividend:

60 cents per share on the Common Stock, payable June 15, 1957 to stockholders of record at the close of business May 15, 1957.

The Goodyear Tire & Rubber Co.
By Arden E. Firestone,
Secretary

April 1, 1957

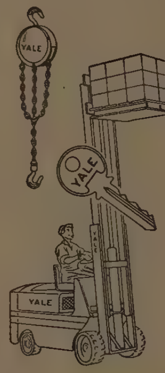
THE GREATEST NAME IN RUBBER

YALE & TOWNE

88th Annual Report

HIGHLIGHTS OF REPORT TO STOCKHOLDERS

	1956	1955
NET SALES and other receipts	$123,725,731	$105,978,076
Total Costs and expenses	111,001,862	96,028,239
Net income before taxes on income	12,723,869	9,949,837
Provision for taxes on income	6,700,000	5,270,000
NET INCOME FOR YEAR	$ 6,023,869	$ 4,679,837
NET INCOME PER SHARE (Based on average number of shares outstanding)	$ 3.01	$ 2.82
Average number of shares outstanding	1,998,226	1,660,750
CASH DIVIDENDS declared	$ 2,884,460	$ 1,835,922
Income reinvested in the business	3,139,409	2,843,915
Payroll and other employee-benefits	42,968,826	36,936,294
TOTAL ASSETS	99,722,258	89,587,643
Current assets	71,244,969	62,920,623
Current liabilities	19,452,380	18,134,354
Long-term debt	18,168,707	19,178,291
Earnings reinvested in business, Dec. 31	30,565,571	28,206,162
STOCKHOLDERS' EQUITY	$ 61,261,171	$ 52,274,998



MANUFACTURER OF:
Industrial Fork Lift Trucks, Hoists, and Front-end Loaders
Locks, Door Closers, Pumps, and other Hardware Products
Powdered Metal Products and components

CASH DIVIDENDS paid by Yale & Towne every year since 1899

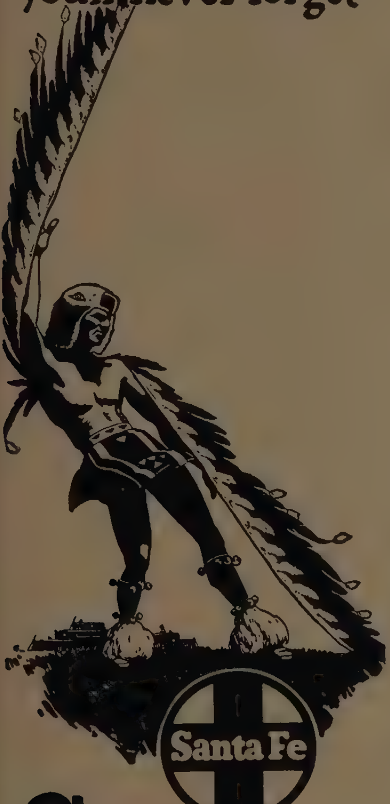
Next quarterly dividend, 37½¢ a share, is payable April 1 on stock of record on March 14, 1957

THE **YALE & TOWNE** MANUFACTURING COMPANY
Executive Offices: Chrysler Building, New York 17, U.S.A.

16 manufacturing plants and a Research Center in the United States, Canada, England and Germany. Licensed manufacturers in Australia, Belgium, France, Italy, Japan and Spain.

Sales representatives and Service Centers in principal cities of the world.

A trip you'll always remember – a train you'll never forget



Super Chief

...your carefree ride through the colorful Southwest Indian Country on the *Super Chief*... with the Turquoise Room, famous private dining room. Daily departures from Chicago and Los Angeles.

R. T. Anderson, Gen'l Pass. Traffic Mgr.
Santa Fe System Lines, Chicago 4

$10,000,000 EXPANSION PROGRAM for D-X SUNRAY REFINERIES

AN EXPANSION AND IMPROVEMENT PROGRAM now under way at the two D-X Sunray refineries in West Tulsa and Sunray Village (Duncan), Oklahoma will involve an investment of more than $10 Million.

UNITS TO BE ADDED or expanded are a 20,000 barrel naphtha unifier, a 12,000 barrel platformer, an alkylation plant and butane-isomerization unit, and other modern installations.

THE COMPANY'S DECISION to proceed with the expansion plans is based on the industry-wide expectation that octane requirements for the nation's motor vehicles will continue to rise during the years to come.

AT THE PRESENT TIME D-X SUNRAY is making 96 and 97 octane premium gasoline and producing regular gasolines of 88-89 octane, or better.

BEFORE 1960 the Company believes regular gasoline will be 92-94 octane rating, and premium,or Ethyl fuels will go to 100 octane for most pleasure car use.

THIS EXPANSION PROGRAM will not only raise octane ratings of gasoline, but will also increase the capacities of the refineries.

THIS IS IN LINE with the all-over Sunray Mid-Continent program of constantly finding new oil reserves, improving products, and increasing consumption of these products through an expanding marketing operation. Watch Sunray Mid-Continent grow!

D-X is the brand name of quality products manufactured by D-X Sunray Oil Company, a wholly-owned subsidiary.

SUNRAY MID-CONTINENT
Oil Company
GENERAL OFFICES SUNRAY BUILDING TULSA, OKLAHOMA

Interchemical
CORPORATION

CHEMICAL COATINGS FOR EVERY INDUSTRY
. . . for every product . . . for everyone

1956 sales of Interchemical products were the highest in our history—$111,107,000.

These chemical coatings are used to protect and decorate almost every kind of product made by industry, from packages and publications to apparel and appliances. And, as the words on the printed or typewritten page, they provide communication. Chemical coatings are everywhere in our everyday lives.

Interchemical last year invested $5,378,000 in improvements and additions to plant and equipment, to the end that our customers, served by 5,261 Interchemical people in 22 factories and 78 offices and service stations, might share the benefits of continually rising standards of product performance and technical service.

The Corporation faces the future with confidence.

We Serve These Industries

INDUSTRY	IC PRODUCTS	% OF IC SALES
PACKAGING	Printing Ink, Coatings, Pigment Dispersions, Adhesives	38%
PUBLISHING	Printing Ink, Carbon Paper and Inked Ribbons	15%
PRINTING & LITHOGRAPHING	Printing Ink, Adhesives, Carbon Paper, Printing Supplies	10%
TEXTILE, PLASTIC & LEATHER CONVERTING	Textile Printing Colors, Dyestuffs, Pigment Dispersions, Adhesives, Coated Fabrics	12%
HOUSEHOLD FURNITURE & APPLIANCES	Finishes, Plastic Foams, Polyester Resin, Adhesives, Coated Fabrics	6%
OTHER CONSUMER PRODUCTS	Finishes, Coated Fabrics, Coatings and Inks for Plastics, Polyester Resin	3%
OTHER INDUSTRIAL PRODUCTS	Finishes, Coated Fabrics, Polyester Resin, Adhesives	3%
TRANSPORTATION EQUIPMENT & SERVICES	Finishes, Coated Fabrics, Adhesives, Carbon Paper and Inked Ribbons	4%
INTERMEDIATE MATERIALS PROCESSING	Clay, Pigment Dispersions, Resins	2%
EXPORT		5%
MISCELLANEOUS		2%

1956 WAS A GOOD YEAR FOR INTERCHEMICAL

	1956	1955	1954
Net sales	$111,106,620	$100,488,870	$89,803,121
Net profit before taxes	9,377,958	9,572,528	7,975,489
Net profit after taxes	4,707,958	4,747,528	3,770,489
Net profit per dollar of net sales	.042	.047	.042
Net profit per common share	$5.40	$5.51*	$4.38*
Dividends paid per common share	2.60	2.35*	1.91*
Book value per common share	38.47	35.42*	32.50*
Number of common shares	809,807	799,198*	783,318*
Number of preferred shares	74,403	74,145	74,355
Dividends paid per preferred share	$4.50	$4.50	$4.50
Net worth	$38,595,507	$35,768,466	$32,899,315

*Adjusted to reflect the 15% common stock dividend paid February 1, 1956.

If you would like a copy of our 1956 Annual Report, address Kenneth B. Lane, Secretary, at our Executive Offices

INTERCHEMICAL CORPORATION • EXECUTIVE OFFICES: 67 WEST 44th STREET, NEW YORK 36, N. Y.

IPI* and In-tag* Printing Inks • Interchemical* Industrial Finishes • Aridye* and Interchem* Textile Colors • A & W* Carbon Papers and Inked Ribbons • Cotan* and W & W* Coated Fabrics • R-B-H* Pigment Dispersions • Angier* Adhesives • Albion* Refractory Clays.

*TRADEMARK

Diffusion Analysis as an Investment Guide

EDMUND A. MENNIS and JOHN M. BIRMINGHAM, JR.

AN INTERESTING TOOL for measuring patterns of business activity has been the diffusion index. It is based on the characteristic of the components of time indexes to move in different directions within the pattern of the index as a whole. This type of analysis has been applied by the National Bureau of Economic Research to the statistical indicators of cyclical revivals and recessions,[1] and has also been used by the National Industrial Conference Board to examine industrial production, wholesale prices and department store sales.[2]

The intriguing factor of diffusion analysis is that a properly developed measure of diffusion may reveal how widespread or limited are the forces of expansion and contraction within the index being measured, and consequently the trend of the index itself may be anticipated. For this type of analysis the components of the index should be related to each other but ought not have ties so pronounced that they move simultaneously.

PURPOSE OF THE STUDY

The purpose of this study is to apply the diffusion technique to stock price indexes with two objectives in mind. In the first place, security prices have been relatively reliable indicators of changes in business conditions; an analysis of the cyclical turning points in security prices has suggested that on the average they lead turning points in general business both at the peaks and at the troughs of business cycles.[3] Consequently, if some technique can be developed to foreshadow cyclical turns in security prices, a useful tool in business cycle analysis will be available.

Secondly, any procedure that can clarify the broader cyclical trends in stock prices will be a valuable tool in investment management. The day-to-day movements of the broad stock indexes are often confusing, concealing divergent activity within their component parts. An analysis that would indicate not only the trend of the index but also the pattern of diffusion within the index could be of value in arriving at investment decisions.

SUMMARY AND CONCLUSIONS

To anticipate the analysis that follows, the following summary is useful:

1. Erratic movements of stock prices within broader trends required the application of a smoothing technique to the stock price series, using fairly long moving averages. This resulted in the introduction of a time lag between significant turns in the movement of stock prices and a reflection of this fact in the diffusion indexes.

2. As an offset to this, stock price data are available much more promptly than other economic data, and they do not have to be adjusted for seasonal factors nor do subsequent revisions in data make preliminary figures suspect. Consequently, as economic time series go, the diffusion indexes give fairly prompt reports.

3. Three weighted and unweighted indexes were developed. Although one broad weighted index had the best results, use of the other indexes to supplement the analyses was found helpful.

4. The indexes were found to be useful in marking cyclical turning points in stock price movements; the lag at market peaks was about three months and at troughs one month. Some false signals were given in the 30-year period that was examined; however, these signals indicated months during which market prices were moving in the direction the indexes suggested, although the movement was not sufficient to be classified as cyclical in nature.

5. As a guide to investment decisions, the indexes were also satisfactory. The broad index had a slightly better than 50% record in signalling profitable turns. (Profitability was measured by the subsequent percentage change in the Standard and Poor's Composite Stock Price Index; no allowance was made for dividend income, commissions and taxes.) More important, the percentage gain during the period analyzed averaged 19.2% on "buy" signals and 6.7% on "sell" signals, even after allowance for losses sustained by following incorrect signals.

ANALYSIS TECHNIQUE FOLLOWED

It was decided to use selected industry components of the Standard & Poor's Composite Average. As has been discussed elsewhere,[4] the Standard & Poor's indexes are probably the most representative of the movements of stock prices generally because of their method of construction and because of their broad coverage. The Composite Index itself is comprised of 79 individual industry series. Since the diffusion technique gives equal weight to every series used in the analysis, we resolved to limit the indexes used to 13 series, since that would represent a substantial portion of the Standard & Poor's Composite Average and also portray a broad cross-section of the American economy. The thirteen stock series selected cover about three-quarters of the total value of the Standard & Poor's Composite Average, which, in turn, represents over 80% of the value of all stocks listed on the New York Stock Exchange. The groups were selected to include consumer durable and nondurable industries, producers' durables, and service industries. A list of the groups included is as follows:

Autos (including General Motors).
Building Materials Composite.
Chemicals (including duPont).
Electrical Equipment.
Food Composite.
Machinery Composite.
Oil Composite.
Railroads.
Paper.

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[1] Footnotes appear at end of article.

Steel (including U. S. Steel).
Retail Trade Composite.
Textile and Apparel Composite.
Utilities.

PREPARATION OF A WEIGHTED AVERAGE INDEX

In measuring diffusion within the index, several methods were used. In the first method, the month-to-month movement in each of the selected industry stock series was identified as + (rising) or — (falling). The direction of change in each month was then weighted by the number of months of consecutive rise or fall up to that point (i.e., +3 denoting a month of increase following two previous months of increase; —1 denoting a month of initial decline following a month of increase). Weights were limited to rising or falling 6 in order to avoid sharp discontinuities when a series turned up or down (rising or falling 1) after a prolonged decline or advance (more than six months or rising or falling 6). The entries for the 13 series were then averaged for each month to yield a time series from 1926 to the present. For example, an average duration of run of +3 implies that the industries making up the stock price index had been rising on the average for three months without interruption; some industries, of course, may have declined in that month and been offset by others expanding for more than three months. An average duration of run of —1 implies that the components as a whole have just turned down, although some continued upward movements may have been offset by earlier and continuing declines.

The first series resulting from this type of analysis was found to be of little value for analytical purposes. As might be expected, the choppy movement of stock market prices within a broad pattern resulted in violent and frequent fluctuations of the diffusion index. Further investigation suggested that in stock prices the durations of run fall in a skewed distribution, with emphasis on moves of short duration. The results of this analysis are represented in Table I. As is shown on the bottom line of the table, 40% of the total stock moves were for one month's duration only, and 23% were for two months' duration. Consequently, some smoothing technique was necessary in order to bring out the cyclical nature of the data.

The method used for smoothing involved the application of moving averages.[5] The selection of the moving average for each stock series was based on successive experiments to effect a smooth series.[6] The final determination of the period of moving averages for each stock series is shown in the last column of Table II, with the resultant month's duration of run for each stock series shown in the first six columns.

PREPARATION OF A CUMULATIVE INDEX

A parallel measure of diffusion was constructed by cumulating the average durations of run. The cumulative series depicts the scope of expansion or contraction in stock prices in terms of a broadening or narrowing of diffusion among its component series. For example, if a month with average duration of run of +3 is followed by another month of +3, the cumulative series becomes +6, denoting continued, equal expansion; followed by +1, the cumulative series becomes +7, denoting continued but decelerated expansion; followed by —1, the cumulative series becomes +6, representing a turn toward contraction.

The cumulative curve has a tendency to parallel the original data of Standard & Poor's stock index rather closely, acting as a broad pattern of the cyclical trend in stock prices. The average-duration-of-run index has a tendency to turn prior to turns in the original Standard & Poor's index; the cumulative index by its composition does not turn downward until the average-duration-of-run index goes from plus to minus. Because of this lagging tendency, the cumulative index was not used in the analyses described below.

PREPARATION OF PER CENT EXPANDING INDEX

Another type of analysis applied to the smoothed data was to measure month by month the per cent of the thirteen series expanding (from 0% if all series were contracting to 100% if all series were expanding). This procedure eliminated the weights given to the length of time a series has been expanding or contracting and merely takes into account its position (after adjustment via the moving-average technique) in any particular month.

PREPARATION OF A WEIGHTED AVERAGE INDEX—EIGHT LEADING SERIES

After the preparation of the indexes described above, an examination was made of the number of months' lead or lag of the peak or trough of each of the 13 smoothed stock indexes compared with the cyclical peak or trough of the Standard & Poor's 480 Stock Index.[7] Based on this analysis, certain of the 13 smoothed stock indexes (food composite, machinery composite, paper, railroads, and utilities) appeared to lag at both peaks and troughs. Therefore, the weighted average diffusion index was recomputed eliminating these five lagging series.

CHART PRESENTATION

The results of the foregoing computations are presented in the accompanying charts. On Chart I the top series plotted represents the Standard & Poor's 480 Stock Index from the period 1926 to date. The second line represents the index constructed by cumulating the average durations of run of the 13 series. On Chart II, the first line is the diffusion index prepared by weighting the average durations of run of the 13 series. The second line is the diffusion index prepared by the weighted average duration of run of the eight series that did not lag at general market turning points. Finally, the last line is the series prepared based on the per cent of components expanding in any particular month, with no weight given to the duration of the expansion. The vertical lines labeled "P" or "T" represent the cyclical peaks and troughs, respectively, of the Standard & Poor's Composite Index. Because of the different moving average periods used in the component series and because the position of the diffusion indexes is most usefully compared with the latest position of security prices, the indexes are plotted on the last month of the moving-average period rather than centered, as is usually done.

TABLE I

MONTH'S DURATION OF RUN - UNSMOOTHED DATA
Standard & Poor's Stock Groups 1926-1953

	Number of Months in One Direction							
Stock Group	1	2	3	4	5	6 or more	Total Runs	Mean Duration of run*
Auto	37	26	23	14	5	12	117	2.86
Building	57	28	30	14	3	6	138	2.43
Chemical	52	33	21	11	4	10	131	2.56
Electrical Equipment	56	41	22	13	2	9	143	2.34
Food	65	30	25	13	8	5	146	2.30
Machinery	55	26	24	10	6	11	132	2.54
Oil	71	33	24	15	5	6	154	2.17
Paper	55	28	22	9	9	9	132	2.54
Rail	52	33	22	11	14	4	136	2.46
Retail	53	42	19	15	2	8	139	2.40
Steel	49	32	24	11	7	10	133	2.52
Textile	48	17	19	14	6	15	119	2.81
Utility	55	25	25	11	8	8	132	2.54
Total	705	394	300	161	79	113	1,752	
Average								2.48
%	40.2	22.5	17.1	9.2	4.5	6.5	100.0	
Cumulative %	40.2	62.7	79.8	89.0	93.5	100.0		

*Computed on the basis of 335 months.

The initial problem in analysis was to ascertain the relationship between turning points of the diffusion indexes and major turning points of the Standard & Poor's 480 Stock Index. Initially each of the authors independently examined the diffusion indexes in order to determine movements of the diffusion indexes that would suggest movements in the Standard & Poor's 480 Stock Index. After considerable experiment two points of significance were established. For the weighted average indexes, a point at rising or falling 3 months was considered significant; for the percentage expanding series, 25% and 75% were the points selected. When the index line crossed the upper of these two points in a downward direction, the termination of a cyclical peak was suggested; when the lower line was crossed in an upward direction, the termination of a cyclical trough was suggested.

Table III summarizes the month's lead (signified by a minus sign) or lag (signified by a plus sign) of each of the three diffusion index series at each of the major market peaks and troughs since 1929. The last column in the table summarizes the experience using all three of the series, taking the maximum lag of any series for each market turning point. Generally each turning point in the diffusion indexes lags the general market turning point; at market peaks the average is over three months and at troughs this is reduced to under one month. Using all three indexes, the lag is increased to slightly under five months at peaks and slightly over two months at troughs.

Under the system adopted, however, a number of false signals were given by each of the indexes. The best performance was made by the 13 series diffusion index, which signalled only four false peaks and three false troughs. The eight series diffusion index signalled four false peaks and five false troughs. The per cent expanding series reported thirteen false peaks and seven false troughs.

An examination of these false signals reveals that at only three peaks did all three diffusion indexes give a false signal, and at only two troughs was an incorrect indication given. The false peak signals were given in February-March 1939, October-November 1943, and June-August 1951. The false trough signals were given in November-December 1940, and June-July 1941.

CHART I

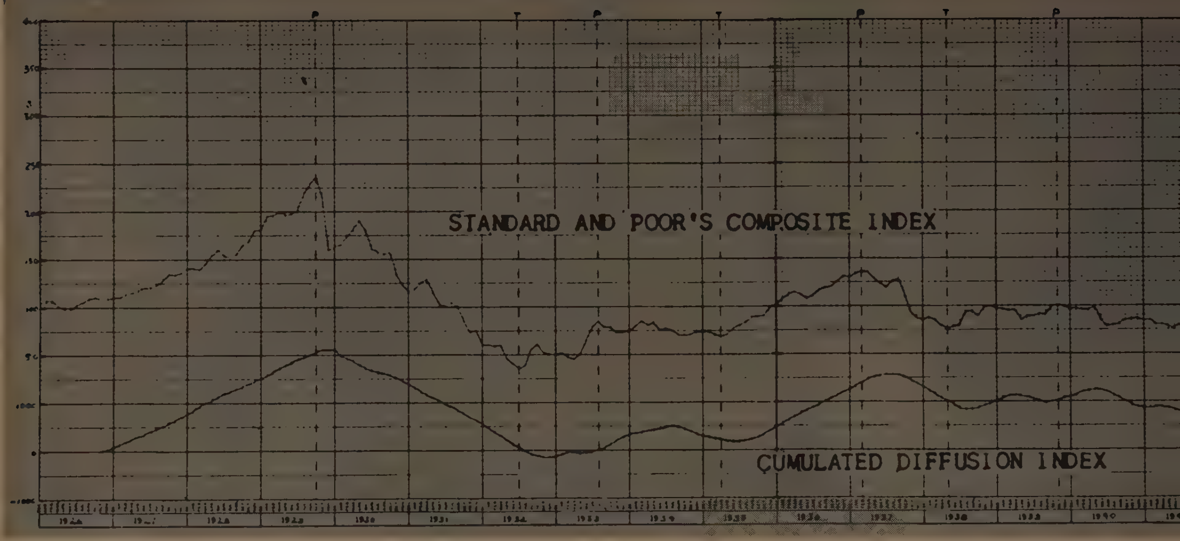
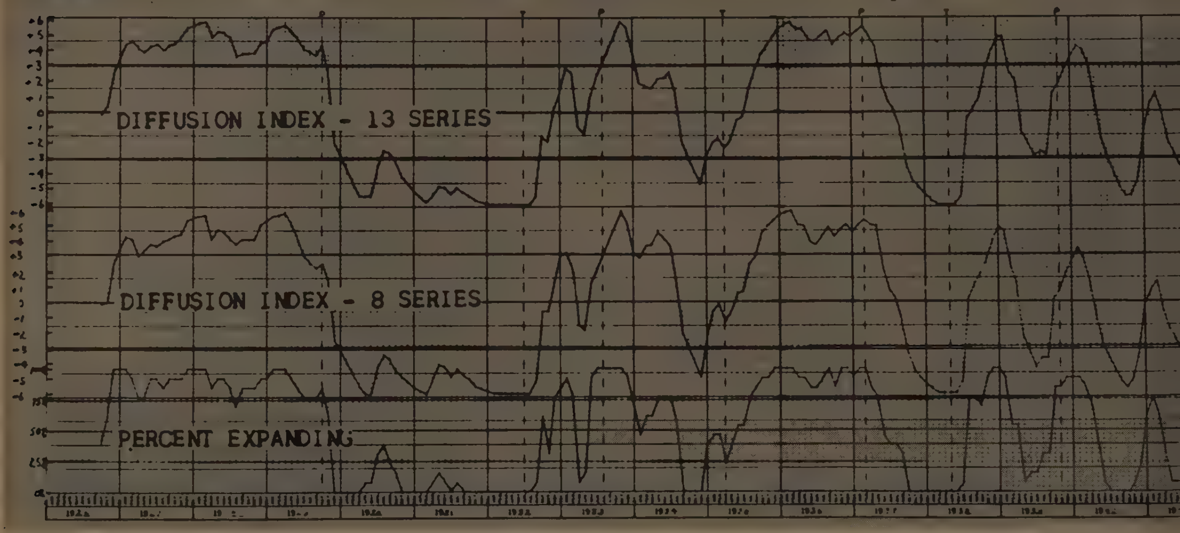


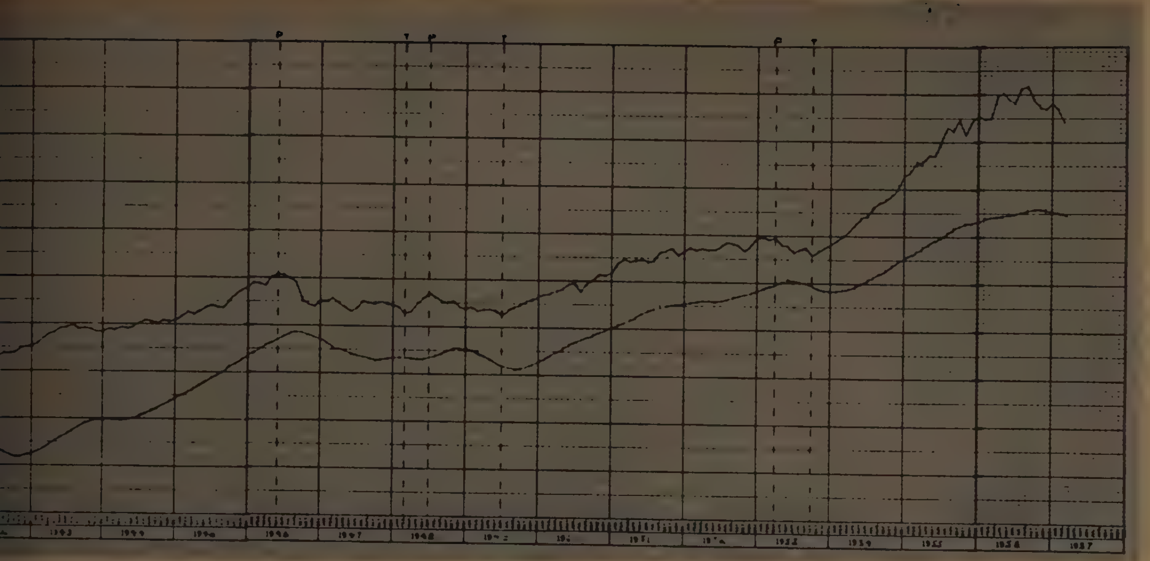
CHART II

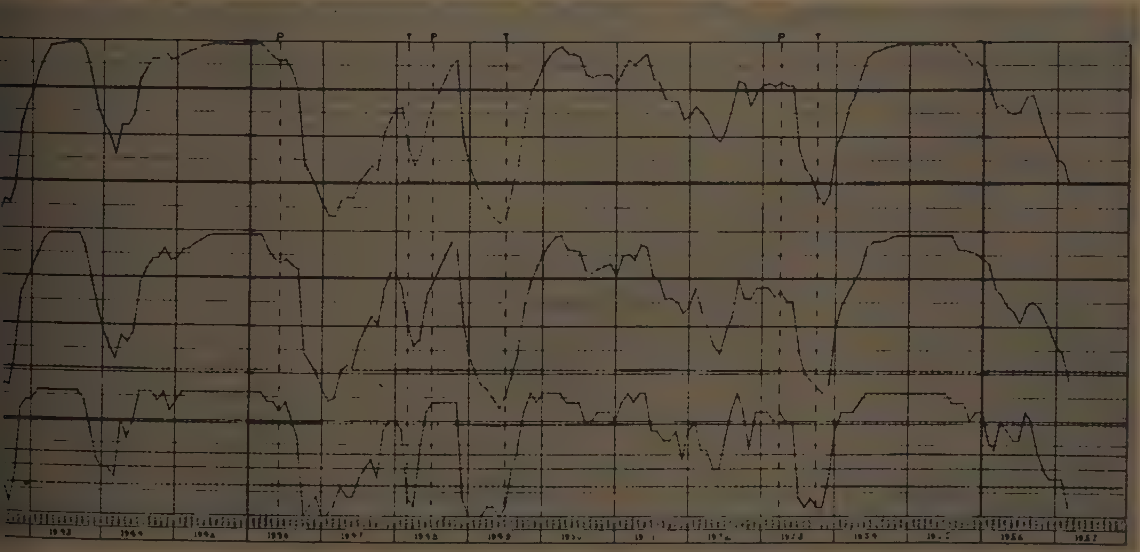


With respect to peaks in the 1939 period, a fairly sharp drop in the market occurred in April. The market thereafter recovered to a peak in October. The false peak signal at the end of 1943 presumably reflected the moderate dip in the market that began in July of that year. The false peak in mid-1951 reflected the temporary peak and sidewise movement that occurred in February and thereafter.

At troughs, the false signal at the end of 1940 and in mid-1941 correctly indicated the downward drift of the market that occurred beginning in April of 1940 and culminated in the cyclical trough of May 1942. The two minor recoveries in the market during this period can hardly be called cyclical, and all diffusion indexes gave strong indications of the termination of the cyclical trough in May 1942.

Diffusion indexes appear to be useful tools in determining whether cyclical market peaks or troughs have been reached. No cyclical peak or trough was missed by the diffusion indexes. However, the composition of the diffusion indexes (which involves use of fairly long moving-average periods) and the critical points used in the analyses (involving points 25% from the peak or 25% from the bottom of the diffusion index range) result in signals being given several months after the actual peak or trough in market prices has been reached. Nevertheless, there may be consolation in knowing whether the peak just passed is probably cyclical or not, and such information known within a few months of turning points is fairly prompt, as economic time series go. Moreover, the index numbers for the various stock series are available each Monday morn-





ing as of the previous Wednesday, the monthly average being but an average of the weekly averages. Consequently, by the second or third week of the month a fairly accurate estimate of the month's average is available.

The probability of false signals can be reduced by waiting for confirmation of all three diffusion indexes. Those few false signals given have been associated with market trends that, although not strictly classified as "cyclical," nevertheless were moves in the direction indicated by the indicators.

Of course, other diffusion index combinations than those developed here are possible. This analysis is merely a report on one such approach, and the results are considered reasonably successful.

Following the analysis described in the foregoing section, further experimentation was conducted to determine whether the movement of the diffusion indexes could be of use in making investment decisions. The method of analysis used was applied primarily to the weighted average duration of run of the 13 series. As will be described later, comparisons were then made with the other diffusion indexes prepared.

After considerable experiment, four zones of action were determined. (For convenience, action points have been considered as "sell" or "buy" points, although it does not necessarily follow that full commitments in, or complete liquidation of, investment positions are required.) One line of demarcation was the "zero line," when the diffusion index representing the weighted average duration of run moved from positive to negative. The other two lines of demarcation were about midway between the zero line and

TABLE II

MONTH'S DURATION OF RUN - SMOOTHED DATA

Standard & Poor's Stock Groups 1926-53

Stock Group	Number of Months in One Direction						Total Runs	Mean Duration of Run *	Moving Avg. Selected
	1	2	3	4	5	6 or more			
Auto	7	4	5	3	4	22	45	7.45	5
Building	11	2	7	4	1	19	44	7.62	7
Chemical	3	4	0	4	4	20	35	9.57	7
Electrical Equipment	8	4	4	5	2	20	43	7.80	7
Food	12	3	3	1	2	19	40	8.38	8
Machinery	8	2	0	4	4	21	39	8.60	7
Oil	6	5	2	1	1	23	38	8.82	8
Paper	2	4	1	3	1	23	34	9.86	7
Rail	8	6	2	4	1	20	41	8.18	7
Retail	8	10	6	3	2	21	50	6.70	7
Steel	6	6	3	3	2	23	43	7.80	6
Textile	7	5	7	4	1	26	50	6.70	6
Utility	3	2	2	1	2	20	30	11.17	7
Total	89	57	42	40	27	277	532		
Average								8.36	
%	16.7	10.7	7.9	7.5	5.1	52.1	100.0		
Cum.%	16.7	27.4	35.3	42.8	47.9	100.0			

* Computed on the basis of 335 months.

TABLE III

MONTHS' LEAD (-) OR LAG (+) OF DIFFUSION INDEXES AT MAJOR MARKET TURNING POINTS

Date of Turning Point	13 Series	8 Series	Percent Expanding Series	Maximum Lag In Each Series
Market Peaks:				
9/29	+ 1	- 3	+ 1	+1
7/33	+ 6	+12	+ 5	+12
2/37	+ 3	+ 3	+ 3	+ 3
10/39	+ 5	+ 4	+ 5	+ 5
5/46	+ 3	+ 4	+ 3	+ 4
6/48	+ 5	+ 5	+ 5	+ 5
3/53	+ 3	- 6	+ 3	+ 3
Average	+ 3.7	+ 2.7	+ 3.6	+ 4.7
Market Troughs:				
6/32	+ 3	+ 3	+ 3	+ 3
3/35	- 3	- 3	- 3	- 3
4/38	+ 3	+ 3	+ 3	+ 3
5/42	+ 5	+ 4	+ 4	+ 5
2/48	- 8	-11	+ 2	+ 2
6/49	+ 2	+ 2	+ 1	+ 2
9/53	+ 3	+ 3	+ 2	+ 3
Average	+ 0.7	+ 0.1	+ 1.7	+ 2.1

TABLE IV

INVESTMENT POSITION IN MAJOR BULL AND BEAR MARKETS

Market Dates	Months Duration	Number of Months Investment In - Stage A	Stage B	Stage C	Stage D
Bull Markets:					
Nov.1926 - Sept. 1929	34	34	--	--	--
July 1932- July 1933	13	--	6	4	3
Apr. 1935- Feb. 1937	23	17	2	4	--
May 1938- Oct. 1939	18	3	6	6	3
June 1942- May 1946	48	33	8	3	4
Mar. 1948- June 1948	4	--	1	3	--
July 1949- Mar. 1953	45	26	14	3	2
Total Months	185	113	37	23	12
Percent of Months	100%	61%	20%	12%	7%
Bear Markets:					
Oct.1929 - June 1932	33	1	1	4	27
Aug.1933 - Mar. 1935	20	6	7	5	2
Mar.1937 - Apr. 1938	14	3	3	1	7
Nov.1939 - May 1942	31	3	7	10	11
June 1946 - Feb. 1948	21	3	5	6	7
July 1948 - June 1949	12	3	3	2	4
Apr.1953 - Sept. 1953	6	3	3	--	--
Total Months	137	22	29	28	58
Percent of Months	100%	16%	21%	20%	42%

TABLE V

Market Performance - 13 Series Weighted Diffusion Index

December 1926 - December 1955

Buy Month	S & P Index	Sell Month	S & P Index	% Gain or Loss on Buy	% Gain or Loss on Sell
12/26	111.3	10/29	213.0	+91	+26
7/30	157.7	9/30	157.1	- 1	+61
9/32	61.5	1/34	79.9	+30	+ 9
12/34	73.1	5/37	123.3	+69	+24
7/38	93.6	2/39	95.1	+ 2	- 2
12/39	97.0	3/40	96.7	- 1	+12
12/40	84.9	6/41	79.5	- 6	- 5
7/41	83.2	1/42	72.6	-13	- 2
10/42	74.2	11/43	91.4	+23	-11
6/44	101.5	8/46	146.4	+44	+19
6/47	119.1	11/48	120.4	+ 1	- 1
8/49	121.8	8/51	181.5	+49	- 5
8/52	191.1	10/52	183.4	- 4	- 7
12/52	197.0	6/53	182.8	- 7	- 4
12/53	190.7	12/55*	327.0	+72	

Summary:	Buy	Sell	Total
Number of signals	15	14	29
Number of correct signals	9	6	15
Number of incorrect signals	6	8	14
Average % gain on correct signals	+39.2%	+24.1%	+33.0%
Average % loss on incorrect signals	- 5.4%	- 4.7%	- 5.0%
Net average % gain	+19.2%	+ 6.7%	+13.4%

* Although no downturn had yet been signalled by December 1955, this date was used as the termination point in the analysis.

TABLE VI

Market Performance - 8 Series Weighted Diffusion Index

December 1926 - December 1955

Buy Month	S & P Index	Sell Month	S & P Index	% Gain or Loss on Buy	% Gain or Loss on Sell
12/26	111.3	7/29	218.9	+96.5	+72.0
9/32	61.5	2/33	47.5	-22.8	-79.0
7/33	85.0	1/34	79.9	- 6.0	- 6.4
2/34	85.0	7/34	75.4	-11.3	- 3.1
12/34	73.1	5/37	123.3	+68.7	+24.1
7/38	93.6	2/39	95.1	+ 1.6	- 4.8
9/39	99.7	2/40	96.8	- 2.9	+12.3
12/40	84.9	6/41	79.5	- 6.4	- 4.7
7/41	83.2	2/42	69.9	-16.0	- 0.7
9/42	69.4	11/43	91.4	+31.7	-14.1
7/44	104.3	9/46	125.4	+20.2	+ 4.9
4/47	119.3	1/48	120.1	+ 0.7	- 9.8
7/48	131.9	11/48	120.4	- 8.7	- 1.2
8/49	121.8	8/51	181.5	+49.1	- 5.3
8/52	191.1	9/52	188.2	- 1.5	- 1.3
12/53	190.7	12/55*	327.0	+71.5	

Summary:	Buy	Sell	Total
Number of signals	16	15	31
Number of correct signals	8	4	12
Number of incorrect signals	8	11	19
Average % gain on correct signals	+38.7%	+25.9%	+34.3%
Average % loss on incorrect signals	- 9.7%	-17.4%	-14.2%
Net Average % gain or loss	+11.9%	- 7.5%	+ 2.0%

* Although no downturn had yet been signalled by December 1955, this date was used as the termination point in the analysis.

the maximum duration of run (rising or falling 6), or at rising or falling 3 months. These zones have been indicated on Chart I. Because the movements of the diffusion index were at times somewhat uncertain, it was decided to have four areas of investment commitments. Stage A (from +3 to +6 months average duration of run) would be an area of maximum commitment; Stage B (from 0 to +3) would be one in which commitments would be reduced to two-thirds of a maximum commitment; Stage C (from —3 to 0) would be one in which commitments would be reduced to one-third of a full commitment; and Stage D (from —3 to —6) one in which withdrawal from the market would be complete.

Table IV presents the results of this approach for each of the major bull and bear stock market periods from January 1926 to September 1953. As can be seen from the table, in major bull markets the diffusion index would have indicated a full commitment in 61% of the months, a two-thirds commitment in 20% of the months, a one-third commitment in 12% of the months, and no commitment in only 7% of the months. The performance in major bear markets seems somewhat less satisfactory but still acceptable. No commitment would have been indicated in 40% of the months, a one-third commitment in 20% of the months, a two-thirds commitment in 21% of the months and a full commitment in 16% of the months.

The weakness of the approach just described is that it does not take into consideration the direction the market is moving within each zone. Moreover, some account must be taken of the errors resulting from acting when false signals are given. In order to show the investment results of following the indexes, the analysis in the following section was made.

INVESTMENT RESULTS

Using the same "action points" as described above, each of the three diffusion indexes was examined in order to determine, subsequent to each "buy" or "sell" signal, (1) the number of correct and incorrect signals, and (2) the average percentage change in the broad Standard & Poor's Index. It is important to note that no consideration was given to the practical problems of commissions, taxes, income, capital gains or the resulting tax burden in deriving these results. Further, it was assumed that the turning points in the diffusion indexes were recognized and acted upon simultaneously.

Tables V-VII detail the performance for each of the three indexes. The "buy" and "sell" months for each index are indicated, together with the Standard & Poor's Composite Index for that month, and the percentage increase or decrease in the Composite Index from the "action" month until the month a reverse action was indicated by

TABLE VII

Market Performance - Percentage Expanding Diffusion Index

December 1926 - December 1955

Buy Month	S & P Index	Sell Month	S & P Index	% Gain or Loss on Buy	% Gain or Loss on Sell
12/26	111.3	7/28	152.3	+36.8	- 2.8
8/28	156.6	10/29	213.0	+36.0	+24.2
6/30	161.4	8/30	155.9	- 3.4	+60.6
9/32	61.5	3/33	45.6	-25.9	-45.6
5/33	66.4	12/33	74.3	+11.9	-13.2
4/34	84.1	7/34	75.4	-10.3	+ 3.1
12/34	73.1	3/35	68.0	- 7.0	- 4.9
4/35	71.3	5/37	123.3	+72.9	+24.1
7/38	93.6	9/38	89.6	- 4.3	- 9.3
10/38	98.5	2/39	95.1	- 3.5	+ 3.5
7/39	91.8	3/40	96.7	+ 5.3	+12.2
12/40	84.9	2/41	80.1	- 5.7	- 3.9
7/41	83.2	10/41	80.4	- 3.4	+13.7
9/42	69.4	10/43	94.8	+36.6	- 1.9
3/44	96.6	4/44	95.1	- 1.6	- 2.2
5/44	97.2	8/46	146.4	+50.6	+18.6
6/47	119.1	1/48	120.1	+ 0.9	- 3.7
4/48	124.6	11/48	120.4	- 3.4	+ 2.2
7/49	117.8	6/51	171.7	+45.8	- 8.9
1/52	186.9	2/52	183.2	- 2.0	- 4.9
7/52	192.1	10/52	183.4	- 4.5	- 3.5
11/52	189.8	6/53	182.8	- 3.7	- 2.6
11/53	187.5	12/55*	327.0	+74.4	

Summary:	Buy	Sell	Total
Number of signals	23	22	45
Number of correct signals	10	9	19
Number of incorrect signals	13	13	26
Average % gain on correct signals	+34.9%	+16.9%	+26.1%
Average % loss on incorrect signals	- 6.2%	- 9.2%	- 7.7%
Net average % gain	+ 9.9%	+ 0.7%	+ 5.3%

* Although no downturn has yet been signalled by December 1955, this date was used as the termination point in the analysis.

the termination of either a correct or an incorrect move. At the bottom of each table a summary is presented giving the number of correct and incorrect signals, the average gain or loss for both buy and sell signals and an over-all gain for all market moves for the entire period covered. In averaging the percentage gains and losses, the geometric mean was used.

It is interesting to note that in terms of correct signals the 13 series index has the best performance, slightly over 50%. The other two indexes are less satisfactory; more than half the indications are incorrect. Presumably their greater sensitivity would account for this. The 50% success in indicating turns in stock prices raises the question whether the analyst could not do as well by tossing a coin. However, of more significance is the per cent advance or decline subsequent to a signal being given. In this respect the 13 series index is again better; the over-all gain is 13.4%, with a net gain of 19.2% on "buy" signals and 6.7% on "sell" signals. The eight series index has the least satisfactory performance; the over-all gain is only 2.0%, with a net gain of 11.9% on "buy" signals and a net loss of 7.5% on "sell" signals. The percentage expanding series is second best; the over-all gain is 5.3%, with a net gain of 9.9% on "buy" signals and a net gain of 0.7% on "sell" signals. The 13 series has an additional advantage; the number of turns was the lowest, averaging only one turn per year for the period covered.

RECENT PERFORMANCE

This report would not be complete without a comment on performance of the indexes subsequent to the end of 1953. Up to June 1955 all three indexes were at their maximum expanding level, and they had been at this level for one of the longest periods of time since 1929. In July the percentage expanding index dropped; the 13 and 8 series indexes followed in August. The decline was gradual rather than precipitous; the "action" levels were crossed by the per cent expanding series in January and by the other two series in February of this year. In spite of the resurgence of the stock market in March and July of 1956, there was no reversal in the indexes to indicate a false signal. (The per cent expanding index gave a false signal in July, but this was not confirmed by the other two indexes.)

Although it is somewhat hazardous to comment on recent performance of the market, an examination of the chart suggests that a cyclical peak in the Standard & Poor's Composite Index may have been reached in August 1956; the decline through February 1957 certainly supports this thesis. There is some question whether the cyclical peak of the "market" was reached earlier in 1956; certain other indexes and measures suggest April as the key month. However, in August the chemical and oil groups, which together account for about 30% of the value of Composite Index, turned down from the previous month and apparently tipped the scales in favor of a cyclical decline.

The interesting thing about the cyclical peak is that the diffusion indexes correctly indicated the peak with a substantial lead, contrary to the traditional lag pattern shown in Table III. If August 1956 is selected as the peak, two of the indexes indicated a turning point six months in advance and one seven months in advance. The explanation for the unusual performance apparently is (1) the remarkable nature of the relatively steady and rapid rise in stock prices from the Fall of 1953 through mid-1956 and (2) the statistical nature of the diffusion indexes.

More specifically, the prolonged and rapid rise in prices resulted in the diffusion indexes reaching a maximum about mid-1954 and remaining there for the longest period within the experience of the time period considered. The only similar period is 1945-6, but the decline in prices in the Fall of 1946 was not only precipitous but it affected all industry stock series at once. The 1956 experience has been somewhat different. The lead of the diffusion indexes over the drop in stock prices generally can be accounted for by the fact that the components of the index began to level off and decline moderately in early 1956, and as a result of the moving-average method used the rapidly rising prices of five to seven months previous surpassed them. Moreover, the decline in prices has not been precipitous and affecting all series; rather it has been a sort of "rolling readjustment" affecting first one group and then another. Consequently, although the "market" appeared to rise, numerous cross-currents were apparent under the surface. The historical record suggests that this success in forecasting is unusual rather than typical.

FOOTNOTES

1. *Statistical Indicators of Cyclical Revivals and Recessions,* by Geoffrey H. Moore, Occasional Paper 31, National Bureau of Economic Research (1950) Appendix A. See also "Economic Indicators and the Economic Outlook", a talk delivered by Dr. Moore before the Michigan Conference on the Economic Outlook on November 11, 1954, and reprinted in the *Michigan Business Review,* January 1955, pp 1-8.

This approach is further defined by Geoffrey Moore in "Analyzing Business Cycles", The American Statistician April-May 1954, pp 13-19.

A critical comment on the use of diffusion indexes is presented by Arthur Broida in "Diffusion Indexes", *The American Statistician,* June 1955, pp 7-16. Dr. Moore has a rejoinder in "Diffusion Indexes: A Comment", *The American Statistician,* October 1955, pp 13-17, 30.

2. "Cyclical Diffusion", by Milton Lipton, *The Conference Board Business Record,* June 1954, pp 227-33. See also "A Longer Look at Diffusion Analysis", by Milton Lipton, *The Conference Board Business Record,* June 1955, pp 212-17, and "Cyclical Diffusion: A New Tool for Business Analysis" by Milton Lipton, *Technical Paper Number Five,* National Industrial Conference Board (1956).

3. See "Security Prices and Business Cycles", by Edmund A. Mennis, *Analysts Journal,* February 1955, p 79 ff.

4. "Which Stock Market Average", by Harry D. Comer, *Analysts Journal* August 1952, pp 142-6, and "Yardsticks for the Market", by Lewis L. Schellbach, *Analysts Journal* November 1955, pp 33-4.

5. In the preparation of the moving average, since only directions of change are recorded, it is not necessary to compute the moving average. For example, for a 4-month average the direction of change is obtained by comparing the fifth month with the first, the sixth with the second, etc.

6. As a point of departure, the moving averages suggested by Dr. Moore (Occasional Paper 31, page 81) were tried. These averages are based on the average duration of run of the original data. However, the resultant smoothed series were still too choppy, and longer moving average periods had to be used.

7. The months of peaks and troughs used for Standard & Poor's 480 Stock Index were based on prior research. In general, the determination of "cyclical" follows the procedures used by National Bureau of Economic Research. See Mennis, op. cit., pp 81, 84 also *Measuring Business Cycles,* by Arthur F. Burns and Wesley C. Mitchell, National Bureau of Economic Research (1946), pp 56-66.

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The Board of Directors of Rome Cable Corporation has declared consecutive Dividend No. 72 for 35 cents per share on the Common Capital Stock of the Corporation, payable March 28, 1957, to holders of record at the close of business on March 18, 1957.

GERARD A. WEISS, *Secretary*
Rome, N. Y., March 7, 1957

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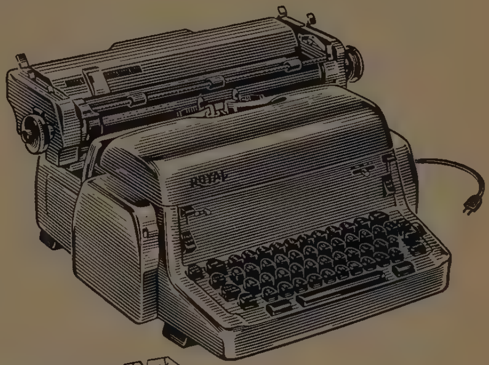

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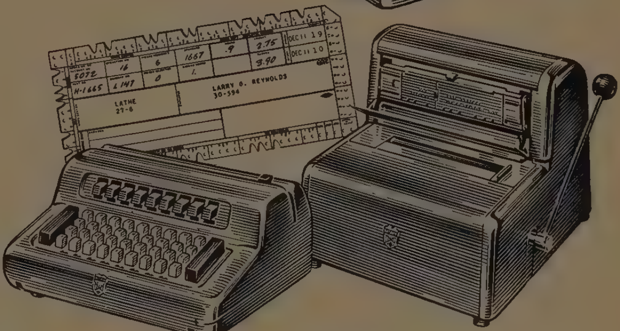

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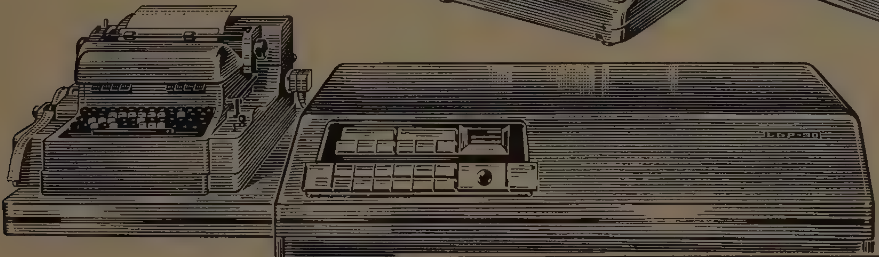

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Net Profit after Depreciation and Provision for Federal Taxes on Income	$ 3,133,997	$ 3,185,499
Earned per Share—Common Stock	$1.93	$1.96*

*Includes non-recurring income equal to 14 cents per common share, resulting from an award in litigation.

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Found: A Realistic Market Measure

SAUL A. SMERLING

WALL STREET, WHICH INSISTS on utmost realism in its statistics, has long operated in a curious "never-never land" so far as market yardsticks are concerned. Most of the averages by which it measures changes in stock prices are so hopelessly mired in mathematical confusion that they inevitably mislead all but those who study them with a practiced eye.

This is not news to the veteran market analyst. Common sense and a well-developed critical faculty taught him long ago that something was amiss. Nevertheless he still can hardly avoid a flush of ebullience when the Dow-Jones industrials, for example, soar eight points in a single day; or at least a fleeting disquiet when they sink by a like amount.

He knows that he can restore his perspective by making certain calculations that reveal the true average change in the Dow-Jones industrials: $1.22. If he also bears in mind that this represents only the change in 29 of the 900-odd industrial common stocks traded on the New York Stock Exchange (plus one utility), he is properly armed against extremes of joy or despair.

THE PUBLIC CONFUSED

To the man in the street, who is turning increasingly to stock investment for employment of his surplus funds, the spectacle of eight-point changes in an "average" standing at 470, or of five-point changes in one reading 300 (New York Times), or even of three-point moves in a comparative laggard reaching for 200 (New York Herald Tribune), is one to excite nothing so much as consternation. He can hardly be blamed if he asks, "Which are these eight-point movers?" or more plaintively, "Why do not my stocks move like that?"

And there is the puzzle of the average itself, when only a handful of stocks sell near 470, or 300, or even 200. Since a detailed exposition of the whys and wherefores takes the average listener up a jungle trail that sooner or later becomes hopelessly tangled, the customary answer is a brief "distortion because of splits." Which can only add to his mystification, since stocks obviously decline in price per share and move more narrowly after splits.

If we owe it to ourselves to use a more accurate tool, we owe it at least as much to the public to report the position of the market in a realistic and understandable way. If Wall Street expects to dispel in the minds of millions of potential investors the idea that the market is fraught with mystery, can it afford to ignore the fact that the most baffling mystery of all exists at precisely the point where contact with the public is most frequently made?

Some critics, in desperation, have even suggested splitting the averages, which might silence some questions, but would serve only to perpetuate their basic failings. Aside from the fact that they are based on the values of a limited number of stocks, these drawbacks arise mainly from complications due to stock splits, rights and stock dividends.

The unweighted average, as typified by the Dow-Jones industrials (similar methods are used, with variations, by the Times and Herald Tribune), began as a simple average of the prices of selected stocks. Prices of the 30 stocks in the average were added and the sum divided by 30.

ADJUSTMENTS NECESSARY

This simple procedure served its purpose adequately so long as there were no changes in the characteristics of the constituent stocks. But a split or similar basic alteration in any of the stocks depressed the average value and could give a misleading impression of market weakness. Thus it was necessary to make adjustments in order to preserve the continuity of the average. In the case of the Dow-Jones averages, this was done by reducing the divisor.

Assume, for example, that the total value of the 30 stocks is $3,000, yielding an average value of $100 a share. If one of the stocks, selling at $100, were split two-for-one, the total would be reduced to $2,950 and the average to $98.33, if prices of the other stocks in the average were unchanged. However, the $100 level could be retained by changing the divisor to 29.5.

Over the years the divisor has been steadily reduced, and at the time of writing is 4.283. Thus if each of the 30 stocks rises one point, the Dow-Jones average rises, not one point, but seven points. Similarly, if the aggregate value of one share of each of the 30 industrials is $2,194.50 (as it was on a recent date), the average value is expressed, not as $73.15, but as 512.37. For obvious reasons, the dollar sign is omitted.

Moreover, this process inevitably has given rise to haphazard changes in weighting, so that movements of the average frequently do not reflect accurately the movements of the constituent stocks, let alone the market as a whole. While weighting of some sort cannot be avoided in a stock price average if continuity is to be preserved, it should follow a logical and consistent principle.

Thoughtful members of the analytical profession and commentators on the financial scene have long mulled over these problems, concluding that a more accurate and comprehensive average produced on an hourly, or even a daily, basis would entail insurmountable problems. To be sure, broadly representative measures, based on a scientific weighting principle, existed in Standard & Poor's 420-stock industrial and 480-stock composite indexes. These were available only weekly, however, limiting their usefulness.

Hear, for example, Burton Crane of the New York Times on the subject: "Standard & Poor's and the S.E.C.[1] employ . . . the most accurate method of all, but it is too time-consuming for daily newspaper use."[2]

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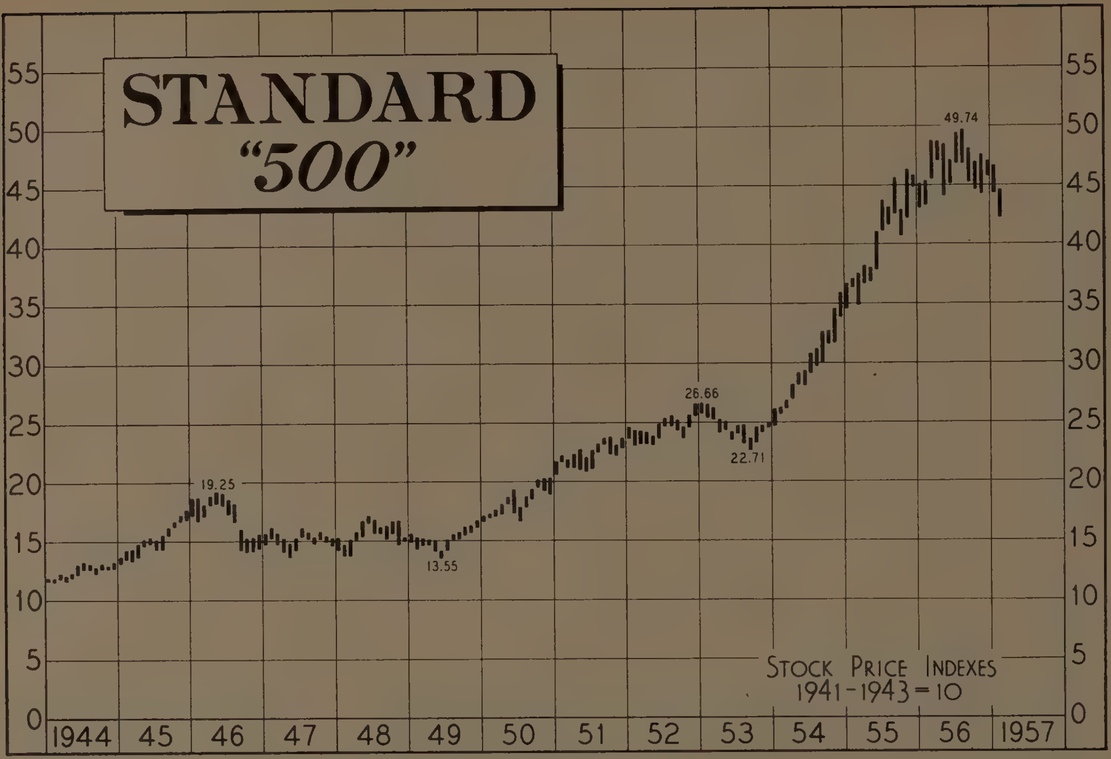
[1] The SEC adopted the Standard & Poor's method of weighted aggregates in establishing its own series of weekly stock market indexes in 1951.

[2] New York Times, July 20, 1956.



THE STANDARD 500

Endorsement of this approach no longer need be qualified, thanks to the modern magic of electronics. Working in cooperation with Melpar, Inc., the electronics research and development arm of Westinghouse Air Brake Company, Standard & Poor's recently inaugurated a 500-stock index, together with three component indexes of 425 industrials, 25 rails and 50 utilities. These indexes are available hourly (together with opening, closing and daily high and low) on the American Stock Exchange nationwide system of stock quotation tickers, the Commodity News Service Ticker and the Cotton Ticker, as well as daily in many newspapers.

Quick synthesis of the huge mass of raw data presented a number of formidable problems, on which electronic technicians worked for nearly a year. Among these was the development and construction of a code converter that transforms six-channel information (of the type produced by the stock ticker) into the four-channel information normally handled in perforated-tape processes. The converter is unique, and is being used solely in preparation of the Standard & Poor's indexes.

Basic to the project was the development of a computer program that enables the Burroughs Datatron to receive information directly from the New York Stock Exchange ticker on perforated-tape, and to translate and interpret this information electronically, including:

(1) Recognition and recording of all transactions;

(2) Recognition of all stock transaction corrections, deletions, modifications and other changes; and

(3) Filtering and rejection of all information extraneous to the recognition and recording of a regular-way transaction.

Final step in the development was a computer program enabling the Datatron to compute the 500-stock weighted index electronically within seconds after receipt of the digested information. Although transmission of the result to the reporting agencies requires more time than the actual computation of the index, the Standard 500 is available on the tickers before the much less comprehensive averages reach the wires. So much for the time-consuming aspects of index computation.

There is no perfect average of stock market prices, nor can there be, since the market comprises a large number of disparate groups and units which are themselves subject to changes in characteristics. The best that can be hoped for is a measure that will reflect the position of the market and changes in that position, both short-term and long-term, with a minimum of distortion.

This entails three separate problems: (1) correction for changes in the character of the constituent units, resulting from the policy of corporations whereby stockholders are rewarded by distributions of additional stock; (2) collection of a truly representative group of stocks; and (3) statement of the average or index in terms consistent with the mean value of the items it comprises.

Standard Statistics Company (now Standard & Poor's) long ago solved the first problem by introducing in this field the weighted aggregates method. In this method, the price of each stock in the average is multiplied by the number of shares outstanding in the hands of investors, to yield a total market value. The aggregate of these market values is then expressed as a relative to a standard base market value, or, as this is more commonly known, an index number.

The use of weighted aggregates virtually eliminates the problem of adjusting for splits, rights or stock dividends. The value of two million shares of stock selling at 50 after a two-for-one split is identical with that of the one million pre-split shares selling at 100. The adjustment is automatic, and a one-point change in the index today can be compared directly with a similar change ten years ago, whereas changing divisors or multipliers make a true comparison impossible in the averages.

By this method, moreover, the split stock retains its relative importance in the index. In the popular arithmetic averages its importance is reduced by 50%; it follows that the importance of stocks not split is correspondingly increased. The resulting distortions, which are compounded from time to time, may not be discernible in daily comparisons, but assume large proportions over the years.

Admitting this drawback, proponents of the averages maintain that they are indicators of hourly or daily changes, not intended for use in long-term studies of market movements, though they are habitually used for this purpose, anyway. After all, the Dow-Jones averages were constructed to implement the Dow Theory, and the Dow Theory holds that primary market swings, extending sometimes over a period of years, certainly are more important than daily fluctuations.

A COMPREHENSIVE YARDSTICK

Even so, the analyst who is familiar with the spectacle of a day-to-day advance in the Dow-Jones industrials while the market as a whole patently was down (or vice versa) knows that the average, as a representation of the market's changes, leaves something to be desired. What it measures is not the market, but (more or less) the price variations of thirty blue chips.

This criticism, it should be noted, applies not only to the D-J average, but to all daily market measures hitherto in general use. Until the electronic techniques were perfected, it was all but impossible to compute any broad measure of the market on an hourly or daily basis. The only practical approach, in the circumstances, was to take a sample.

Obviously this represented a compromise, at best. Sampling has no particular virtue if measurement of the entire universe of items under consideration can readily be accomplished. With the electronic tape reader and computer, it is now possible to prepare an hourly weighted index of all common stocks on the New York Stock Exchange, if desired.

To do so would be to err in the opposite direction, since many issues trade infrequently or are otherwise not representative. Accordingly the new industrial index has been limited to 425 stocks. These, together with the 25 rails and 50 utilities making up the composite 500-stock index, account for approximately 90% of the aggregate value of Big Board common stocks.

The weighted index is more representative than the averages in yet another important respect. The latter predicate a portfolio comprising one share of each of the stocks in the average, a highly arbitrary assumption. The index, on the other hand, essentially reflects the composite of all investor portfolios at any time.

More investors hold more shares of General Motors or Standard Oil (New Jersey) than of Chrysler or Phillips Petroleum. In multiplying the price of each stock by the number of shares held by investors, the index reflects the change in fortunes of the mass of stockholders. It makes no arbitrary assumptions, except that price changes in such stocks as Benguet Consolidated Mining or Northern Central Railway are unlikely to have significant barometric value.

CONSTANT BASIS FOR COMPARISON

Proponents of the averages contend that, in spite of their failings, they have the virtue of affording continuity for purposes of market study. This is more apparent than real. If each point in the Dow-Jones industrials is worth 14 cents today, whereas it was worth 44 cents some ten years ago, wherein lies the continuity? Thanks to the diminishing divisor, the 1929 and 1946 highs are no longer fixed landmarks, but buoys adrift in the sea.

By contrast, today's index point is a duplicate of the index point of ten or thirty years ago. This constant basis is essential to accurate comparisons, in terms of either points or percentages.

Now to return to the problem of reporting in realistic terms. After considerable research, the Standard & Poor's indexes have been based on the 1941-43 average of aggregate values, according that average a value of 10. The index number at any time represents the relationship of the prevailing aggregate value of stocks to the base value.

CONFORMANCE WITH ACTUAL AVERAGE

This arrangement results in a current index value that corresponds closely with the actual average dollar price of all common stocks listed on the New York Stock Exchange. As of December 31, 1956, for example, the Standard 500 index stood at 47.40; the average price of Big Board stocks on that date was $49.12 a share. You need no longer make mental adjustments if you are in the know, or be astonished if you are not, which makes for healthier psychological reaction to changes in stock prices, for both the analyst and the average investory.

In order to provide historical continuity, the new indexes have been tied to the previous Standard & Poor's measures, all of which have been adjusted to the new base. Thus the old and new indexes merge into units affording a market history back to 1871.

Expressing the stock price indexes in realistic terms brings collateral advantages. So-called average earnings and dividends per share no longer will be enlarged out of all proportion by reason of a diminishing divisor (as in the averages) or an unwieldy base (as in the old indexes). For example, earnings and dividends of the stocks in the daily industrial index, which were $35.71 and $20.63 per share, respectively, for the twelve months ended September 30, 1956 on the old basis, now become $3.58 and $2.07 per share.

While price-earnings ratios and yields on the major Standard & Poor's indexes have been available back to 1926, these afforded only gross yardsticks for analytical purposes. Comparison of the price-earnings ratio and yield of a growth chemical stock with similar measures for all industrials, for example, would reveal only the obvious. The new electronic techniques now make it feasible to compute such measures for each of the 98 Standard & Poor's industry groups, so that more precise comparisons may be made with other stocks in the group under review, as well as with the whole market.

Currently under study are a number of companion series that will afford additional analytical yardsticks for each of the 98 sub-groups, based on balance sheet and other data. While completion of these series still lies in the future, their development should contribute considerably to progress in the art of security analysis.

COSDEN
petroleum
corporation

DIVIDEND NOTICE

The Board of Directors has declared a regular quarterly dividend of 25¢ per share on the common stock of this Company, payable March 18, 1957, to stockholders of record at the close of business March 1, 1957.

HIGHER COSDEN OCTANE

R. L. TOLLETT,
President

Big Spring, Texas February 18, 1957

RADIO CORPORATION OF AMERICA

RCA

Dividend Notice

The following dividends have been declared by the Board of Directors:

First Preferred Stock

87½ cents per share on the First Preferred Stock, for the period April 1, 1957 to June 30, 1957, payable July 1, 1957, to stockholders of record at the close of business June 10, 1957.

Common Stock

A quarterly dividend of 25 cents per share on the Common Stock, payable April 29, 1957, to stockholders of record at the close of business March 18, 1957.

ERNEST B. GORIN,
Vice President and Treasurer
New York, N. Y., March 1, 1957

CONTINENTAL MOTORS · Powerful as the Nation · AMERICA'S STANDARD ®

Facts and Figures
FROM THE 1956
ANNUAL REPORT

HIGHLIGHTS

- In the fiscal year ended October 31, 1956, Continental Motors Corporation and consolidated subsidiaries, Wisconsin Motor Corporation and Gray Marine Motor Company, had net sales of $125,116,269, as compared with $145,465,155 in 1955.
- Net earnings for the year were $.49 per common share as against $.76 a share the previous year.
- Curtailment of steel to Continental's manufacturing customers resulted in slowed engine delivery schedules for a time during and after the nationwide steel strike. First quarter earnings were $.07 a share. Second quarter earnings doubled—to $.14 a share.
- Continental Motors' own earnings in the third quarter of 1956 were above those for the previous period. However, the Wisconsin Motor strike, starting in the first week of the third quarter and lasting into the fourth, resulted in a $9,260 deficit for the corporation as a whole.
- Fourth quarter consolidated earnings rose to $.28 a share, as compared with $.21 for the first three quarters combined.
- Biggest source of business in sight for 1957 is related to the mammoth highway building program approved by Congress last summer, calling for $100 billion in new roads over the next 13 years. As a supplier of engines to leading manufacturers of road building machinery and related equipment, Continental expects substantial business from this source.
- Military Division will continue to produce at profitable volume through 1957, subject of course to unforeseen changes in the defense policy.
- Research and Development Division in Detroit is now staffed and equipped to make major contributions to the company's products and profits.
- The upturn in rural income evident late in 1956, after a prolonged slide, is among the more hopeful signs for the new fiscal year. It will be felt in the sales of irrigation engines, as well as of power plants for manufacturing customers serving the farm field.
- As for some years past, there are more Gray Marine engines than any other make, in the inboard craft displayed at this year's boat shows.
- The Continental MA-1A starter unit, improved version of the MA-1, will shortly be in production at CAE's Toledo plant, under Air Force contract. CAE's move of turbine production departments to Toledo is now virtually complete. Higher efficiency will result.
- Continental Motors and its consolidated subsidiaries had a backlog of unfilled orders amounting to $80 million on Jan. 1, 1957.

STATISTICS

Fiscal Years Ended Oct. 31	1956	1955	1954	1953	1952
Engine output (horsepower)	10,783,043	13,876,317	14,659,577	23,073,000	21,390,000
Net sales	$125,116,269	$145,465,155	$182,061,693	$298,438,605	$264,219,009
Net earnings	$1,604,924	$2,502,287	$4,542,748	$6,023,812	$6,126,021
Net earnings per common share	$0.49	$0.76	$1.38	$1.83	$1.85
Dividends per share	$0.25	$0.70	$0.80	$0.80	$0.60
Current assets	$59,262,735	$58,115,700	$67,362,396	$104,895,088	$106,074,697
Current liabilities	$28,304,638	$27,553,219	$35,667,076	$72,618,572	$76,692,367
Net working capital	$30,958,097	$30,562,481	$31,695,320	$32,276,516	$29,382,330
Ratio of current assets to current liabilities	2.1 to 1	2.1 to 1	1.9 to 1	1.4 to 1	1.4 to 1
Long-term debt	$2,760,000	$3,040,000	$3,320,000	$3,600,000	$3,880,000
Property, plants and equipment (net)	$16,547,581	$17,219,239	$16,654,419	$14,085,545	$13,573,156
Stockholders' equity	$45,129,523	$44,349,599	$44,157,312	$42,254,564	$38,870,752
Book value per common share	$13.68	$13 44	$13.38	$12.80	$11.78

Continental Motors Corporation
MUSKEGON, MICHIGAN

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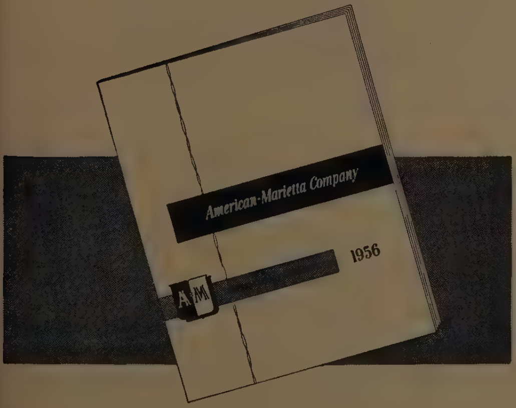
The expansion of manufacturing facilities which took place during the past year promises a further improvement of operations in 1957.

HIGHLIGHTS OF PROGRESS

	1956	1955
Net Sales	$202,310,815	$165,339,971
Net Income	16,204,547	11,109,703
Net Worth	81,763,302	57,519,163
Total Assets	144,787,333	104,484,590
Dividends Paid Shareowners	4,934,502	2,919,117
Number of Shareowners	21,467	14,800



1956 ANNUAL REPORT SENT ON REQUEST

American-Marietta's Annual Report has been sent to more than 22,000 shareowners. It covers in considerable detail the Company's major activities. If you would like a copy, address Department 9.

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The Investment Performance of Selected Growth Stock Portfolios: 1939-1955

TERENCE E. ADDERLEY and DOUGLAS A. HAYES

It is very difficult to find empirical tests of the many theories and practices in investments. Why should this be? In the first place, it is hard to attach a particular theory to a given portfolio experience. There is an unfortunate shortage of published portfolios based on specific principles whose validity can be tested in the hard light of relative performance.

In the second place, checking up on the results of investment recommendations may be a bit delicate. Those individuals or firms who are courageous enough to publish unqualified lists of recommended stocks may be reluctant to have the list investigated as to relative performance especially if the consequences have not been highly favorable.

The first of these drawbacks to empirical research does not apply quite so strongly to the growth stock theory. This approach has been fashionable for some years and from time to time there have been lists published of stocks purporting to fall in this classification.

To prepare accurately the necessary statistical data became an educational experience although somewhat tedious and repetitious to be sure. But it was even more important from an educational standpoint to describe the nature of the research in a clear fashion and evaluate its results.

Concerning the second of these handicaps, we may observe that the only way knowledge can be advanced in the field of investments, as in other disciplines, is to study results on an objective basis. If certain preconceived notions do not work out satisfactorily, or contrariwise if they do, then it is desirable for professionals in the field to be cognizant of these facts. In other areas, such as medicine, results of research are freely published whether or not they reflect on the hypotheses of certain individuals. Security analysts would do well to emulate the medical profession in this respect.

SCOPE OF RESEARCH

There sometimes seems to be a surprising similarity between the "expert" selection of race horses and common stocks. Each likes to recall his "winners" but seems to forget the "losers." In the area of investments this phenomenon is illustrated in most financial records. Advertisements or articles frequently appear which read like the following: ". . . if you had bought Kaiser Aluminum & Chemical (or IBM or any one of numerous companies) when we recommended its purchase, your profit to date would be (and a profit is named which sometimes is as great as 1000%) . . ." But, one might ask, what of the other stocks which were recommended during the same period?

Realistically speaking, the investor contemplating the purchase of growth stocks is faced with the problem of deciding which ones he will invest in, at a particular time. In spite of the fact that the investor has no crystal ball, most articles concerning the merits of these stocks seemingly are based on the assumption that the investor had the foresight to select the best of the growth stocks. This is not always true.

SELECTION OF PORTFOLIOS

The stock lists tested were published in Barron's in the years 1939, 1940, 1941, 1945, and 1946. It seems reasonable to believe that those included were fairly representative of growth stocks recommended in each period; at least they were selected by well known and rather orthodox methods of ferreting out growth stocks from the common herd. These lists appear in the appendix as Exhibits A through E and the portfolios derived from them are designated accordingly as portfolios A to E.

Since the lists contained from thirty to sixty stocks, each list had to be limited to a workable number. A portfolio of ten stocks was chosen on the assumption that this number would provide reasonable diversification and also be representative of the total list. A table of random digits was used in selecting the ten stocks in order to eliminate any subjective element of hindsight.

It was then assumed that the investor purchased each of the ten stocks in the week following the publication of the article. It was further assumed that the investor acquired that number of shares (generally in units of five) which would give a value closest to $1,000. Thus the total value of each portfolio would approximate $10,000. Of necessity, in order to be able to compare the growth stocks with the DJ, the "DJ was purchased" at the same time as the growth stocks.

The assumption was made that no dividends were received in the year of purchase. The reason was that dividends in many cases were not available by quarters and could not be apportioned properly. Since this procedure was employed in all cases, there would be only a negligible effect on the final results. All adjustments were made for stock splits and stock dividends. In order to maintain objectivity and eliminate an arbitrary decision in the case of fractional shares, the following rule was the guide: all full shares were taken; however, any fractional shares were sold (at either the price quoted by the company or, if not available, at the average market price) and the amount was added to the total market value for the particular year.

Once a workable portfolio had been selected, the next decision concerned the measurement of relative investment performance. In brief, each portfolio was compared with the performance of the Dow Jones Industrial average in two ways:

(1) Comparison of the average total market price year by year.

TABLE 1
PORTFOLIO A
COMPARATIVE SUMMARY OF PERFORMANCE - PORTFOLIO A AND THE DOW JONES INDUSTRIAL AVERAGE

	1939	1940	1941	1942	1943	1944	1945
Market Value	$ 9,790.00	$ 9,370.00	$ 7,880.00	$ 7,595.00	$ 9,935.00	$10,945.00	$14,370.00
Cumulative Dividend	-	491.00	1,037.00	1,491.50	1,946.00	2,380.00	2,799.50
Total Value	9,790.00	9,861.00	8,917.00	9,086.50	11,881.00	13,325.00	17,169.50
Percent Change - Market Value	100.0%	95.7%	80.6%	77.6%	101.4%	110.9%	146.8%
Percent Change - Total Value	100.0%	100.6%	91.1%	92.8%	121.2%	136.4%	175.5%
Yield - on Original Investment	-	5.02%	5.58%	4.64%	4.64%	4.34%	4.28%
Yield - Current	-	5.24%	6.93%	5.99%	4.57%	3.96%	2.92%

DOW JONES INDUSTRIAL AVERAGE

	1939	1940	1941	1942	1943	1944	1945
Market Value	$ 135.00	$ 132.00	$ 120.00	$ 106.00	$ 133.00	$ 143.00	$ 174.00
Cumulative Dividend	-	7.06	14.65	21.05	27.35	33.92	40.61
Total Value	135.00	139.06	134.65	127.05	160.35	176.92	214.61
Percent Change - Market Value	100.0%	97.8%	88.8%	78.5%	98.4%	105.9%	128.9%
Percent Change - Total Value	100.0%	103.0%	99.7%	94.8%	118.8%	131.1%	159.1%
Yield - on Original Investment	-	5.23%	5.62%	4.74%	4.66%	4.87%	4.96%
Yield - Current	-	5.35%	6.33%	6.04%	4.74%	4.59%	3.84

TABLE 2
PORTFOLIO B
COMPARATIVE SUMMARY OF PERFORMANCE PORTFOLIO B AND THE DOW JONES INDUSTRIAL AVERAGE

	1940	1941	1942	1943	1944	1945
Market Value	$ 9,485.00	$ 9,902.40	$ 8,802.00	$11,304.00	$12,323.70	$14,932.50
Cumulative Dividend	-	461.00	899.00	1,411.25	1,972.50	2,469.75
Total Value	9,485.00	10,363.40	9,701.00	12,715.25	14,296.20	17,402.25
Percent Change - Market Value	100.0%	104.4%	92.8%	119.2%	130.0%	157.6%
Percent Change - Total Value	100.0%	109.3%	102.2%	134.2%	150.6%	183.5%
Yield - on Original Investment	-	4.87%	4.62%	5.40%	5.92%	5.24
Yield - Current	-	4.66%	4.98%	4.53%	4.55%	3.32

DOW JONES INDUSTRIAL AVERAGE

	1940	1941	1942	1943	1944	1945
Market Value	$ 130.00	$ 120.00	$ 106.00	$ 133.00	$ 143.00	$ 174.00
Cumulative Dividend	-	7.59	13.99	20.29	26.86	33.55
Total Value	130.00	127.59	119.99	153.29	169.86	207.55
Percent Change - Market Value	100.0%	92.3%	81.5%	102.3%	110.0%	133.8%
Percent Change - Total Value	100.0%	98.2%	92.3%	117.9%	130.8%	159.5%
Yield - on Original Investment	-	5.84%	4.92%	4.85%	5.05%	5.15
Yield - Current	-	6.33%	6.04%	4.74%	4.59%	3.84

1946	1947	1948	1949	1950	1951	1952	1953	1954	1955
$15,055.00	$12,590.00	$12,375.00	$11,870.00	$14,770.00	$17,201.08	$19,396.22	$20,661.00	$27,804.35	$36,798.38
3,259.50	3,741.00	4,471.75	5,453.00	6,736.50	7,857.90	9,003.20	10,241.05	11,727.85	13,202.78
18,314.50	16,331.00	16,846.75	17,323.00	21,506.50	25,058.98	28,399.42	30,902.05	39,532.20	50,001.16
153.8%	128.7%	126.2%	121.3%	150.9%	175.8%	198.0%	211.0%	284.0%	376.0%
187.4%	166.9%	172.1%	177.1%	219.5%	259.0%	290.0%	316.0%	404.0%	511.0%
4.70%	4.92%	7.44%	10.01%	13.10%	11.45%	11.68%	12.64%	15.17%	15.07%
3.05%	3.81%	5.91%	8.27%	8.69%	6.52%	5.90%	5.98%	5.32%	4.02%

1946	1947	1948	1949	1950	1951	1952	1953	1954	1955
$ 188.00	$ 175.00	$ 179.00	$ 181.00	$ 216.00	$ 258.00	$ 274.00	$ 275.00	$ 342.00	$ 438.00
48.11	57.32	68.82	81.61	97.74	114.08	129.56	145.67	163.14	184.72
236.11	232.32	247.82	262.61	313.74	372.08	403.56	420.67	505.14	622.72
139.3%	129.6%	132.5%	134.0%	160.0%	191.0%	203.0%	204.0%	254.0%	324.0%
175.0%	172.2%	183.5%	194.4%	232.0%	276.0%	298.0%	311.0%	374.0%	461.0%
5.56%	6.82%	8.53%	9.47%	11.95%	12.11%	11.47%	11.94%	12.93%	15.96%
3.99%	5.26%	6.43%	7.07%	7.48%	6.34%	5.65%	5.86%	5.12%	4.93%

1946	1947	1948	1949	1950	1951	1952	1953	1954	1955
15,754.00	$13,872.80	$15,962.48	$15,106.53	$18,675.20	$24,475.36	$27,429.18	$26,015.24	$31,139.38	$38,148.22
2,960.25	3,607.50	4,284.25	5,043.40	5,835.60	6,778.00	7,828.56	8,788.45	9,845.50	11,093.25
18,714.25	17,480.30	20,246.73	20,149.93	24,510.80	31,253.36	35,257.74	34,803.69	40,984.88	49,241.47
166.1%	146.4%	168.3%	159.4%	197.0%	258.0%	290.0%	275.0%	328.0%	402.0%
197.4%	184.4%	213.5%	213.0%	259.0%	330.0%	372.0%	367.0%	432.0%	520.0%
5.18%	6.83%	7.15%	8.03%	8.35%	9.95%	11.08%	10.12%	11.13%	13.15%
3.12%	4.67%	4.24%	5.03%	4.24%	3.85%	3.83%	3.69%	3.40%	3.28%

1946	1947	1948	1949	1950	1951	1952	1953	1954	1955
188.00	$ 175.00	$ 179.00	$ 181.00	$ 216.00	$ 258.00	$ 274.00	$ 275.00	$ 342.00	$ 438.00
41.05	50.26	61.76	74.55	90.68	107.02	122.50	138.61	156.08	177.66
229.05	225.26	240.76	255.55	306.68	365.02	396.50	413.61	498.08	615.66
144.6%	134.6%	137.7%	139.2%	166.1%	198.5%	211.0%	212.0%	263.0%	337.0%
176.2%	173.1%	185.2%	196.5%	236.0%	281.0%	305.0%	318.0%	383.0%	474.0%
5.77%	7.08%	8.85%	9.83%	12.41%	12.58%	11.90%	12.40%	13.44%	16.60%
3.99%	5.26%	6.43%	7.07%	7.48%	6.34%	5.65%	5.86%	5.12%	4.93%

TABLE 3
PORTFOLIO C
COMPARATIVE SUMMARY OF PERFORMANCE - PORTFOLIO C AND THE DOW JONES INDUSTRIAL AVERAGE

		1942	1943	1944	1945	1946
Market Value	$10,600.00	$ 8,690.00	$11,395.00	$13,235.00	$17,390.00	$21,675.00
Cumulative Dividend	-	685.00	1,342.50	2,002.50	2,693.00	3,802.75
Total Value	10,600.00	9,375.00	12,737.50	15,237.50	20,083.00	25,477.75
Percent Change - Market Value	100.0 %	82.0 %	107.4 %	125.0 %	164.0 %	204.4 %
Percent Change - Total Value	100.0 %	88.4 %	120.2 %	143.9 %	190.0 %	250.5 %
Yield - on Original Investment	-	6.46%	6.20%	6.23%	6.51%	10.46%
Yield - Current	-	7.88%	5.77%	4.98%	3.97%	5.13%

DOW JONES INDUSTRIAL AVERAGE

		1942	1943	1944	1945	1946
Market Value	$ 120.00	$ 106.00	$ 133.00	$ 143.00	$ 174.00	$ 188.00
Cumulative Dividend	-	6.40	12.70	19.27	25.96	33.46
Total Value	120.00	112.40	145.70	162.27	199.96	221.46
Percent Change - Market Value	100.0 %	88.4 %	110.8 %	119.2 %	145.0 %	156.6 %
Percent Change - Total Value	100.0 %	93.7 %	121.4 %	135.2 %	166.7 %	184.5 %
Yield - on Original Investment	-	5.33%	5.25%	5.46%	5.58%	6.25%
Yield - Current	-	6.04%	4.74%	4.59%	3.84%	3.99%

(2) Comparison of the average market price plus cumulative dividends, which has been designated as "total value."

The first method of comparison is standard and requires no explanation. The second method has been employed because growth stocks usually are high priced in relation to their dividends. Thus it is generally believed that the investor in growth stocks will receive smaller dividends in relation to the amount of his investment than will the investor in average stocks. If true, it is possible that the investor buying "income" stocks with their greater dividends and moderate appreciation will do better in the long run than the investor in growth stocks.

In order to compare the performance of each portfolio with its DJ counterpart, an index of performance for each portfolio and the DJ was calculated. Taking the total of the original cost column as 100%, the market value and total value were compared year by year. In addition, a current yield and the yield as a percentage of the original cost were determined. These summations, indexes of performance, and yields also appear in Tables 1-5 and the indexes of performance appear in graphic form in Charts 1-5.

RELATIVE INVESTMENT PERFORMANCE—MARKET VALUE

From Charts 1-5, the most striking fact is that the five growth stock portfolios have shown somewhat disappointing results. Only one of the portfolios, B, has consistently outperformed the DJ. Of the two portfolios picked from lists published since World War II, D and E, the results have been especially discouraging. Except for the first few years following purchase, Portfolio D has consistently been losing ground to the DJ. Portfolio E, except for a two-year period (1952-53), has lagged behind the DJ, although this difference has been small in recent years.

Portfolios A and C, selected from lists published in 1939 and 1941, respectively, have remained close to the DJ since their purchase. However, since 1953 Portfolio A has been faring considerably better than the DJ, while Portfolio C has been lagging slightly behind the DJ.

RELATIVE INVESTMENT PERFORMANCE

Market Value Plus Cumulative Dividends. As suggested earlier, the dividends on the DJ turned out to be generally larger than on the growth stock portfolios. It is interesting to note that the inclusion of dividends did not cause im-

1947	1948	1949	1950	1951	1952	1953	1954	1955
8.256.00	$16,613.25	$16,013.00	$19,655.00	$25,109.44	$25,014.40	$24,207.20	$28,372.00	$35,484.00
4,876.50	6,086.50	7,254.50	8,774.50	10,205.06	11,540.06	12,862.56	14,207.56	15,771.61
3,132.50	22,699.75	23,267.50	28,429.50	35,314.50	36,554.46	37,069.79	42,579.56	51,255.61
172.3 %	156.8 %	151.0 %	185.4 %	237.0 %	236.0 %	228.4 %	267.5 %	335.0 %
218.0 %	214.0 %	219.5 %	268.3 %	333.0 %	344.5 %	350.0 %	402.0 %	483.0 %
10.14%	11.41%	11.02%	14.35%	13.50%	12.60%	12.49%	12.70%	14.75%
5.88%	7.28%	7.30%	7.74%	5.70%	5.33%	5.47%	4.75%	4.42%

1947	1948	1949	1950	1951	1952	1953	1954	1955
175.00	$ 179.00	$ 181.00	$ 216.00	$ 258.00	$ 274.00	$ 275.00	$ 342.00	$ 438.00
42.67	54.17	66.96	83.09	99.43	114.91	131.02	148.49	170.07
217.67	233.17	247.96	299.09	357.43	388.91	406.02	490.49	608.07
145.8 %	149.2 %	150.8 %	180.0 %	215.0 %	228.0 %	229.0 %	285.0 %	365.0 %
181.1 %	194.3 %	206.0 %	249.0 %	298.0 %	324.0 %	339.0 %	408.0 %	507.0 %
7.68%	9.58%	10.66%	13.44%	13.62%	12.80%	13.42%	14.55%	17.98%
5.26%	6.43%	7.07%	7.48%	6.34%	5.65%	5.86%	5.12%	4.93%

portant changes in absolute or relative performance. Nevertheless, there was enough difference to lessen the advantage of Portfolios A and B, which had outperformed the DJ, and to widen the disadvantage of Portfolios D and E. For each portfolio, the predominant factor was the increase in market value. In Portfolios A, B, D, and E, total dividends received as of 1955 (i.e., cumulative dividends) were less than those received on their DJ counterpart when taken as a per cent of original cost. Similarly, in the majority of years, the yields—both current and on original cost—were lower for the growth stock portfolios. Portfolio C was an exception: it amassed more dividends than its DJ counterpart and, in more years than not, the yields on the portfolio were higher than for the DJ, but not enough greater to offset the relatively unfavorable market performance as compared to the DJ.

It is interesting to compare the dividends received from the individual stocks which were the top performers in the various portfolios with those paid on the DJ average. Many of the top performers, appreciation-wise, have also outperformed the DJ dividend-wise. But this merely suggests that if the right "horses" are selected in the sense of anticipating spectacular growth, over a period of years the growth in dividends tends to offset a low current income yield. Even though the payout ratio remains low, such as in Sun Oil or IBM, dividends grow with earnings and ultimately the income yield on original cost may become quite handsome. This result is of course part of the theory of growth investment and there is no doubt it does work out satisfactorily in certain individual cases. There is considerable doubt that it works out over a considerable number of such stocks if the empirical records of these portfolios may be considered representaitve. Over a long span of years the income return on the original investment can be quite good on some growth stocks, but there is some evidence that it may lag behind common stocks as a whole on a representative portfolio of growth situations.

EVALUATION OF RESULTS

While the results of the five portfolios differed considerably, generally the performances were far from what might have been expected in growth stocks. Although it was not the purpose of this investigation to determine why some "growth stocks" continued to grow and others tended to

TABLE 4
PORTFOLIO D
COMPARATIVE SUMMARY OF PERFORMANCE - PORTFOLIO D AND THE DOW JONES INDUSTRIAL AVERAGE

	1945	1946	1947	1948
Market Value	$10,188.00	$11,551.00	$10,854.25	$ 9,825.00
Cumulative Dividend	-	473.10	1,112.20	1,750.20
Total Value	10,188.00	12,024.10	11,966.45	11,575.20
Percent Change - Market Value	100.0 %	113.5 %	106.6 %	96.5 %
Percent Change - Total Value	100.0 %	118.4 %	117.3 %	113.6 %
Yield - on Original Investment	-	4.65%	6.28%	6.28%
Yield - Current	-	4.09%	5.89%	6.52%

DOW JONES INDUSTRIAL AVERAGE

	1945	1946	1947	1948
Market Value	$ 190.00	$ 188.00	$ 175.00	$ 179.00
Cumulative Dividend	-	7.50	16.71	28.21
Total Value	190.00	195.50	191.71	207.21
Percent Change - Market Value	100.0 %	98.9 %	92.1 %	94.2 %
Percent Change - Total Value	100.0 %	102.9 %	100.9 %	109.0 %
Yield - on Original Investment	-	3.95%	4.85%	6.06%
Yield - Current	-	3.99%	5.26%	6.43%

TABLE 5
PORTFOLIO E
COMPARATIVE SUMMARY OF PERFORMANCE - PORTFOLIO E AND THE DOW JONES INDUSTRIAL AVERAGE

	1946	1947	1948
Market Value	$10,937.00	$ 9,646.00	$ 9,783.68
Cumulative Dividend	-	449.15	928.15
Total Value	10,937.00	10,095.15	10,711.83
Percent Change - Market Value	100.0 %	88.2 %	89.5 %
Percent Change - Total Value	100.0 %	92.2 %	98.0 %
Yield - on Original Investment	-	4.06%	4.38%
Yield - Current	-	4.62%	4.91%

DOW JONES INDUSTRIAL AVERAGE

	1946	1947	1948
Market Value	$ 175.00	$ 175.00	$ 179.00
Cumulative Dividend	-	9.21	20.71
Total Value	175.00	184.21	199.71
Percent Change - Market Value	100.0 %	100.0 %	102.3 %
Percent Change - Total Value	100.0 %	105.3 %	114.1 %
Yield - on Original Investment	-	5.26%	6.57%
Yield - Current	-	5.26%	6.43%

1949	1950	1951	1952	1953	1954	1955
9,025.00	$ 9,631.00	$11,386.00	$12,315.00	$11,756.00	$13,206.00	$17,073.14
2,311.95	2,954.45	3,594.45	4,191.08	4,774.08	5,428.08	6,135.33
11,236.95	12,585.45	14,980.45	16,506.08	16,530.08	18,634.08	23,208.47
88.8 %	94.6 %	111.6 %	121.0 %	115.5 %	129.6 %	167.5 %
110.5 %	125.6 %	147.1 %	162.0 %	162.4 %	183.0 %	228.0 %
5.52%	6.32%	6.29%	5.85%	5.73%	6.43%	6.95%
6.23%	6.68%	5.63%	4.84%	4.96%	4.95%	4.15%

1949	1950	1951	1952	1953	1954	1955
181.00	$ 216.00	$ 258.00	$ 274.00	$ 275.00	$ 342.00	$ 438.00
41.00	57.13	73.47	88.95	105.06	122.53	144.11
222.00	273.13	331.47	362.95	380.06	464.53	582.11
95.3 %	113.7 %	135.8 %	144.2 %	144.7 %	180.0 %	231.0 %
116.8 %	143.7 %	174.5 %	191.0 %	200.0 %	245.0 %	306.0 %
6.73%	8.48%	8.60%	8.14%	8.48%	9.18%	11.36%
7.07%	7.48%	6.34%	5.65%	5.86%	5.12%	4.93%

1949	1950	1951	1952	1953	1954	1955
9,298.00	$11,452.40	$15,027.00	$17,441.40	$17,366.24	$20,217.96	$25,796.24
1,450.48	2,140.44	2,903.24	3,662.54	4,440.74	5,245.84	6,107.69
10,748.48	13,592.84	17,930.24	21,103.94	24,806.98	25,463.80	31,903.93
85.0 %	104.6 %	137.5 %	159.5 %	158.8 %	187.0 %	236.0 %
98.2 %	124.3 %	164.0 %	193.0 %	227.0 %	233.0 %	292.0 %
4.87%	6.31%	6.98%	6.95%	7.12%	7.35%	7.68%
5.73%	6.03%	5.08%	4.36%	4.48%	3.98%	3.34%

1949	1950	1951	1952	1953	1954	1955
181.00	$ 216.00	$ 258.00	$ 274.00	$ 275.00	$ 342.00	$ 438.00
33.50	49.63	65.97	81.45	97.56	115.03	136.61
214.50	265.63	323.97	355.45	372.56	457.03	574.61
103.4 %	123.4 %	147.4 %	156.6 %	157.1 %	195.4 %	250.0 %
122.6 %	151.8 %	185.1 %	203.0 %	213.0 %	261.0 %	328.0 %
7.32%	9.23%	9.34%	8.84%	9.22%	9.98%	12.32%
7.07%	7.48%	6.34%	5.65%	5.86%	5.12%	4.93%

lag, perhaps some useful generalities can be drawn from the results.

First, though it cannot be proven conclusively, it appears from a sight test that we selected a representaive sample of the original lists. Thus, the portfolios selected seemed to contain only their reasonable share of poor performers. We must admit that random sampling of this type may not give an accurate test of the performance of the entire list. On the other hand, all of the lists were too extensive to expect a single investor to include all stocks contained therein.

Second, it might be useful to examine the basis for the selection of each list relative to its performance. To repeat our earlier conclusion, List B performed the best of the three earlier lists. Of the two portfolios selected since World War II, List E has been significantly superior to List D, although both have lagged behind the DJ index both in terms of market and total values.

Therefore, the key to the performances may rest in the basis of original selection. The following criteria of selection were used by the authors of the original lists:

List A—Companies whose earnings as of 1939 exceeded previous maximum earnings per share.

List B—Companies which employ the greatest number of research workers.

List C—Companies whose yearly earnings during the 1936-9 period exceeded those in 1929.

List D—Companies whose stock sold at a price higher than the 1929 price in at least one year prior to the year of selection (1949).

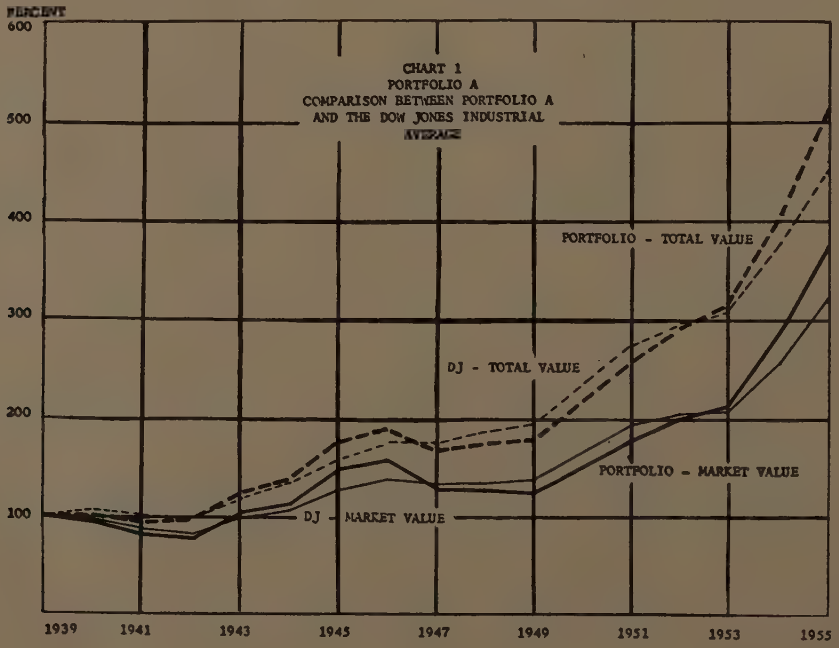
List E—Those companies which, the author felt, were most adversely affected by the war, had the most promising future, and also measured up to certain requirements.

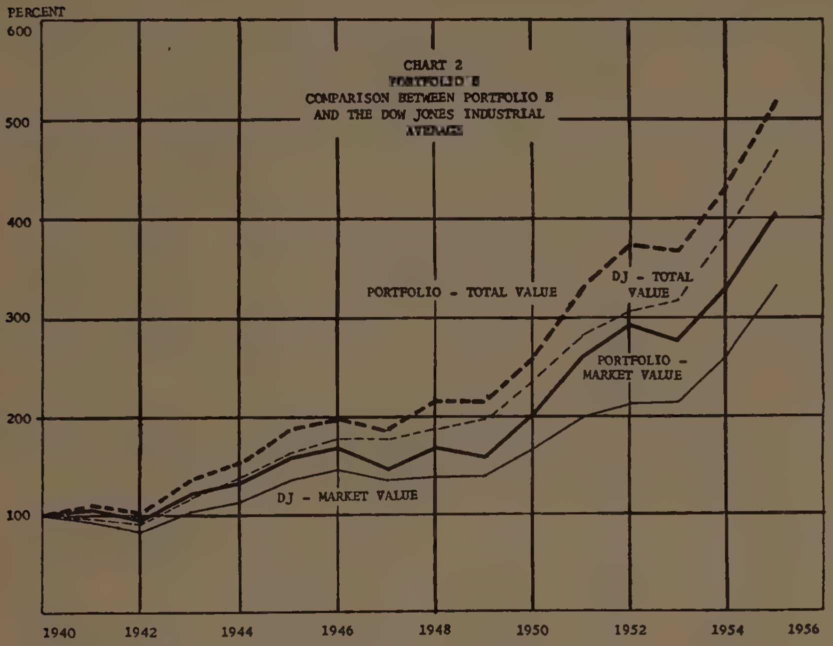
Lists were picked with objective measurements in mind. Also, each of these criteria for choosing growth stocks have been at one time or another "in fashion." The criteria of List E, however, seems to resemble the "undervalued theory" as much as the "growth theory" and it is notable that this group performed better than any postwar list tested.

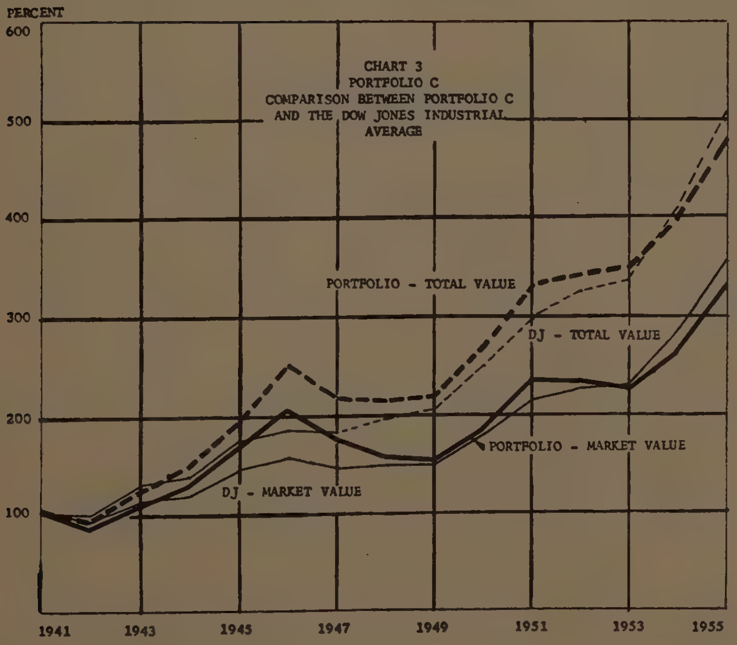
Lists A, C, and D were all selected by statistical observations of past growth. The underlying assumption is that future results would be much like those of the past. On the other hand, List B was unconcerned with past growth of earnings as such and yet was the most successful of all. This may be mere coincidence but it deserves mention as perhaps indicating that a good trend line of earnings is too obvious a method of selecting growth stocks.

Instead of using one method of selection of growth stocks, one might employ a combination of methods, in this case picking only stocks recommended in more than one list. Combining methods immediately eliminates some of the stocks which have shown the poorest performance (e.g., Hudson, Servel, Florence Stove); it also eliminates some of the best stocks (e.g., General Electric, IBM). The remaining stocks included in more than one list would make up a portfolio which would have been superior to any one of the portfolios selected. While care must be exercised in basing decisions on past performance (as shown in the portfolios), there is a possibility of using a combination of methods based on past performance which will enable better selection of growth stocks.

In conclusion, while this empirical investigation does not prove the relative undesirability of growth stocks, it does suggest that following past recommendations has not resulted in unqualified success as compared to the performance of a standard high-quality index, the Dow-Jones Industrial Stocks. Achieving unusual success on investment operations is difficult and these tests of portfolio performance tend to confirm this.




PERCENT
600
500
400
300
200
100
CHART 2
PORTFOLIO B
COMPARISON BETWEEN PORTFOLIO B
AND THE DOW JONES INDUSTRIAL
AVERAGE
PORTFOLIO - TOTAL VALUE
DJ - TOTAL
VALUE
PORTFOLIO -
MARKET VALUE
DJ - MARKET VALUE
1940
1942
1944
1946
1948
1950
1952
1954
1956


PERCENT
600
500
400
300
200
100
CHART 3
PORTFOLIO C
COMPARISON BETWEEN PORTFOLIO C
AND THE DOW JONES INDUSTRIAL
AVERAGE
PORTFOLIO - TOTAL VALUE
DJ - TOTAL VALUE
PORTFOLIO - MARKET VALUE
DJ - MARKET VALUE
1941
1943
1945
1947
1949
1951
1953
1955

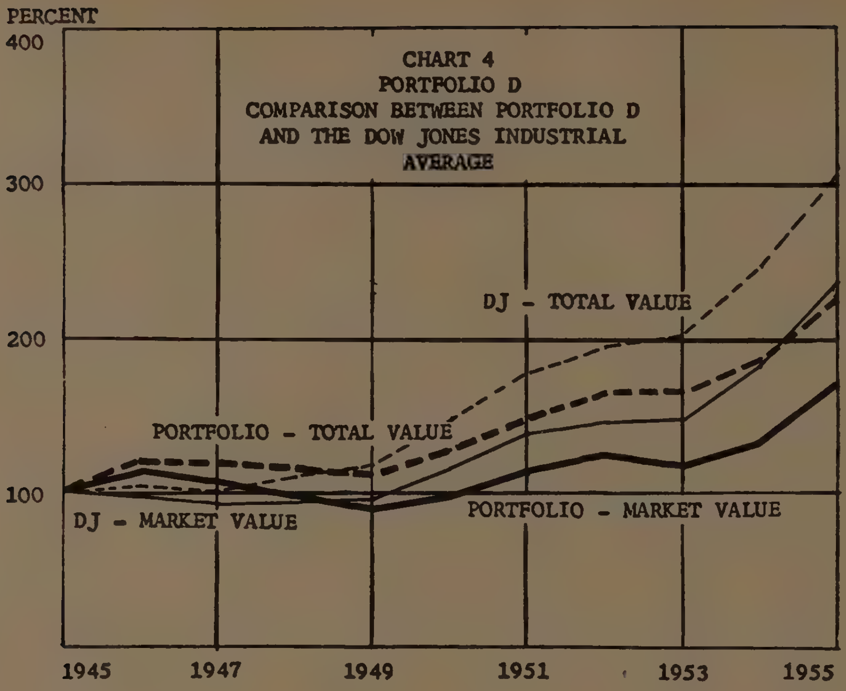


CHART 4
PORTFOLIO D
COMPARISON BETWEEN PORTFOLIO D
AND THE DOW JONES INDUSTRIAL
AVERAGE

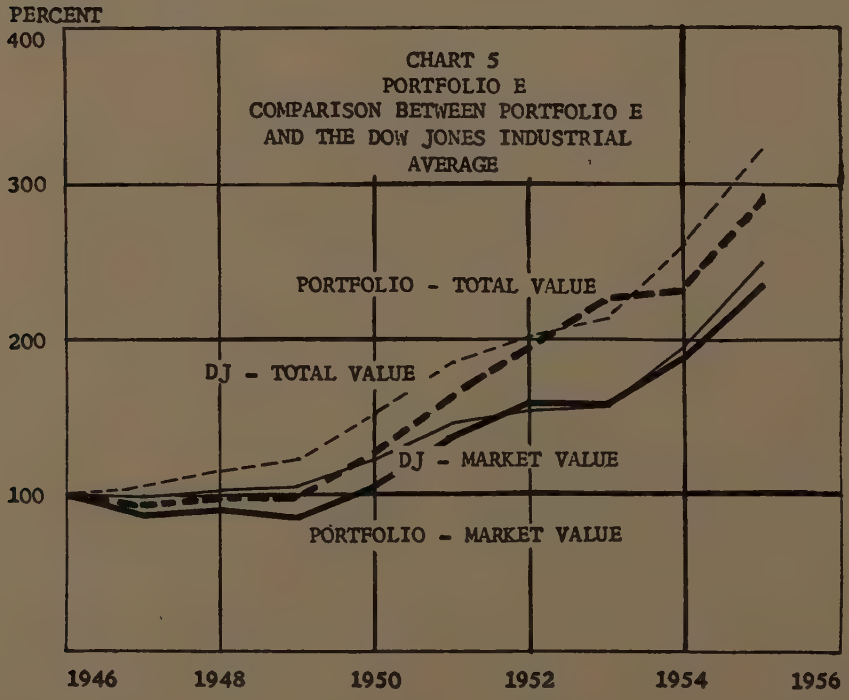


CHART 5
PORTFOLIO E
COMPARISON BETWEEN PORTFOLIO E
AND THE DOW JONES INDUSTRIAL
AVERAGE

Appendix

EXHIBIT A — LIST A

Title: .... Picking "Growth" Stocks
Author: .... T. Rowie Price, Jr.
Publication: .... Barron's Magazine
Date of Publication: .... May 15, 1939

Method of Selection: These companies were selected as growth stocks because earnings in 1939 had exceeded previous maximum earnings on a per share basis.

List of Growth Stocks Recommended:

Addressograph-Multigraph
Abbott Laboratories
*Air Reduction
*Allis-Chalmers
Best & Co.
*Borg Warner
Briggs Mfg. Co.
*Chrysler Corp.
Carrier Corp.
Coca-Cola Co.
*Com'l Credit
Com'l Invest. Trust
*Climax Molybdenum
Curtis-Wright
Dow Chemical
duPont de Nemours
*Douglas Aircraft
Dr. Pepper
Eastern Air Lines
Fidelity & Deposit
Humble Oil
Int'l Bus. Machine

Int'l Nickel
Libbey-Owens-Ford Glass
Masonite
Martin, Gleen L.
Minn. Honeywell
Minn. Min'g & Mfg.
*Monsanto Chemical
*National Gypsum
No. Am. Aviation
Owens-Illinois Glass
J. C. Penny
Procter & Gamble
Royal Typewriter
Sperry Corp.
Square D
Sherwin Williams
Servell
Std. Oil N. J.
Scott Paper
Union Carbide
United Aircraft

*Stocks selected by random sampling for Portfolio A.

EXHIBIT B — LIST B

Title: .... Let Science Pick the Growth Issues
Author: .... J. V. Sherman
Publication: .... Barron's Magazine
Date of Publication: .... September 2, 1940

Method of Selection: The following companies were selected since they employed the largest number of research workers.

List of Growth Stocks Recommended:

Chemicals
*duPont de Nemours
Union Carbide & Carbon
Dow Chemical
American Cyanamid
Hercules Powder
Monsanto Chemical

Petroleum
Std. Oil N. J.
*Gulf Oil
Shell Oil
*Socony Mobil Oil (Formerly: Socony-Vacuum Oil)
*Std. Oil (Ind.)
Std. Oil of Cal.
Atlantic Refining
*Sun Oil

Auto Equipment
Electric Auto Lite
Borg Warner
Cleveland Graphite Bronze

Steel
Republic Steel
U. S. Steel
*Crucible Steel
Inland Steel

Non-Ferrous Metals
Alum. Co. of America
International Nickel
*N. J. Zinc

Machinery
International Harvester
United Shoe Machinery

Electric Communication
American Tel. & Tel.
Western Union

Electric Equipment
General Electric
Westinghouse Electric
Radio Corp of Am.
*Philco Corp.

Rubber Products
Goodyear Tire & Rubber
Goodrich, B. F.
U. S. Rubber
Firestone Tire & Rubber

Automobiles
General Motors
Chrysler Corp.
Ford Motor Co.
Hudson Motor Car Co.

Paper
Champion Paper & Fibre

Containers
American Can
Owens-Illinois Glass

Photo Equipment
*Eastman Kodak

Drugs
*Parke, Davis & Co.

Soap
Procter & Gamble

Building Materials
National Lead
Pittsburgh Plate Glass
Johns-Manville Co.

*Stocks selected by random sampling for Portfolio B.

EXHIBIT C — LIST C

Title: .... Growth Stocks and the Investor
Author: .... Edward N. Chapman
Publication: .... Barron's Magazine
Date of Publication: .... October 6, 1941

Method of Selection: The annual earnings of the following companies during the 1936-1940 period exceeded those in 1929.

List of Growth Stocks Recommended:

Abbott Laboratories
Aloe (A. S.) Co.
Alum. Co. of Am.
Am. Chicle Co.
Am. Cyanamid Co.
Am. Potash & Chem. Co.
*Bayuk Cigars Inc.
Bower Roller Bearings
*Carnation Co.
Celanese Corp. of Am.
Chicago Flexible Shaft Co.
Cleveland Graphite Bronze
Cluett, Peabody & Co.
Coca-Cola Co.
Coleman Lamp & Stove Co.
Dow Chemical
Farmer (Fanny) Candy Shops
Federal Mogul Corp.
*Florence Stove Co.
Food Machinery Corp.
Fruehauf Trailer Co.
*Greyhound Corp.
Heyden Chemical Corp.
Hershey Creamery Co.
Household Finance Corp.
*Lee Rubber & Tire Corp.
Libbey-Owens-Ford Glass
Marchant Calculating Machine Co.
Masonite Corp.
*Merck & Co.

*Minn.-Honeywell Reg. Co.
Minn. Min'g & Mfg.
Monsanto Chemical
Mont. Ward & Co.
Murphy (G. C.) Co.
Nat'l Gypsum Co.
Nat'l Oil Products Co.
Nat'l Steel Corp.
Noranda Mines, Ltd.
*Parker-Rust-Proof Co.
Pet Milk Co.
Phillip Morris & Co.
Pitney-Bowes Post. Meter
Procter & Gamble Co.
Rath Packing Co.
Richardson Co.
Rich's Inc.
Ruberoid Co.
Scott Paper
Sperry Corp.
Square D Co.
Sutherland Paper Co.
Time, Inc.
*Timken-Detroit Axle Co.
Trane Co.
United Eng. & Foundry Co.
U. S. Gypsum Co.
Victor Chemical Works
Warren Foundry & Pipe Corp.
*Western Auto Supply Co.

*Stocks selected by random sampling for Portfolio C.

EXHIBIT D — LIST D

TITLE: .... Companies with 16 Year Growth Trends
AUTHOR: .... Barrett Ravits
PUBLICATION: .... Barron's Magazine
DATE OF PUBLICATION: .... November 19, 1945

METHOD OF SELECTION: The stock of the following companies: (1) was listed on an important exchange in 1929 and (2) had sold higher than in 1929 in (a) at least one year prior to 1945 and (b) had established further new highs in 1945.

List of Growth Stocks Recommended:

Abbott Laboratories
Adams-Millis Corp.
Allied Mills
Amerada Petroleum
American Chain & Cable

*Am. Chicle
Bayuk Cigars
Borg-Warner
Bower Roller Bearing
Chicago Flexible Shaft

*Clevite Corp. (Formerly: Cleveland Graphite Bronze)
Cluett, Peabody
Coca-Cola Co.
*Cuneo Press

Douglas Aircraft
Federated Dept. Stores
Food Machinery
Gen'l Mills
*Hercules Powder

*Heyden Chemical
Holland Furnace
Industrial Rayon
*Internat'l Salt
*Lee Rubber & Tire

Lerner Stores
Loew's Inc.
McGraw Electric
McIntyre Porcupine Mines
Mead Johnson

Minn. Min'g & Mfg.
Nat'l Distillers
Nehi Corp.
Norwalk Tire & Rubber
Pacific Mills

Penney J. C.
Penn. Salt
*Peppersell Mfg.
*Pittsburgh Plate Glass
Royal Typewriter

Scott Paper
Square D
Sutherland Paper
Timken-Detroit Axle
Torrington Co.

Union Bag & Paper
U. S. Rubber
*Universal Leaf Tobacco
Western Auto Supply

*Stocks selected by random sampling for Portfolio D.

EXHIBIT E — LIST E

TITLE: .... 30 "Growth" Stocks for Postwar Investment
AUTHOR: .... T. Rowie Price, Jr.
PUBLICATION: .... Barron's Magazine
DATE OF PUBLICATION: .... December 23, 1946

METHOD OF SELECTION: The following companies are those the author felt were most adversely affected by the war, had the most promising future, and also met the following requirements:

1. Large pre-tax earnings during the war period
2. Large volume of business immediately following the war
3. An aggressive and efficient management interested in research
4. Low labor costs as a percentage of sales
5. Probable ability to operate profitably during period of inflation
6. Sound financial condition

List of Growth Stocks Recommended:

Automotive
Borg-Warner
Electric Auto Lite
Fruehauf Trailer

Bldg. and Const.
*Johns-Manville
Masonite
*Minneapolis Honeywell

Bus. and Off. Equip.
Addressograph
Intern'l Bus. Mach.

Chemicals
American Cyanamid
*Dow Chemical
duPont
*Hercules Powder
*Monsanto Chemical
Union Carbide

Electrical Equip.
*Philco
*Square D
*Sylvania Electric

Glass
Corning Glass

Machinery and Metal Prod.
Doehler Jarvis

Miscellaneous
*American Optical
Minn. Min'g & Mfg.

Petroleum
*Gulf Oil
Phillips Petroleum
Shell Union

Pharmaceuticals
Abbott Laboratories
Sharpe & Dohme
Merck & Co.

Rubber
Goodyear Tire & Rubber
U. S. Rubber

Air Conditioning
Carrier, Pref. (Conv.) 4½%

*Stocks selected by random sampling for Portfolio E.

Pullman Incorporated

358th Dividend and 91st Consecutive Year of Quarterly Cash Dividends

A regular quarterly dividend of seventy-five cents (75¢) per share will be paid on March 14, 1957, to stockholders of record March 1, 1957.

CHAMP CARRY
President

PULLMAN-STANDARD CAR MANUFACTURING CO. Built by Pullman Standard
KELLOGG
TRAILMOBILE

GOULD-NATIONAL BATTERIES, INC.

Manufacturers of a complete line of automotive and industrial storage batteries.

A REGULAR QUARTERLY DIVIDEND

of 42½c per share on Common Stock, was declared by the Board of Directors on February 11, 1957, payable May 1, 1957, to stockholders of record April 22, 1957.

A. H. DAGGETT
PRESIDENT

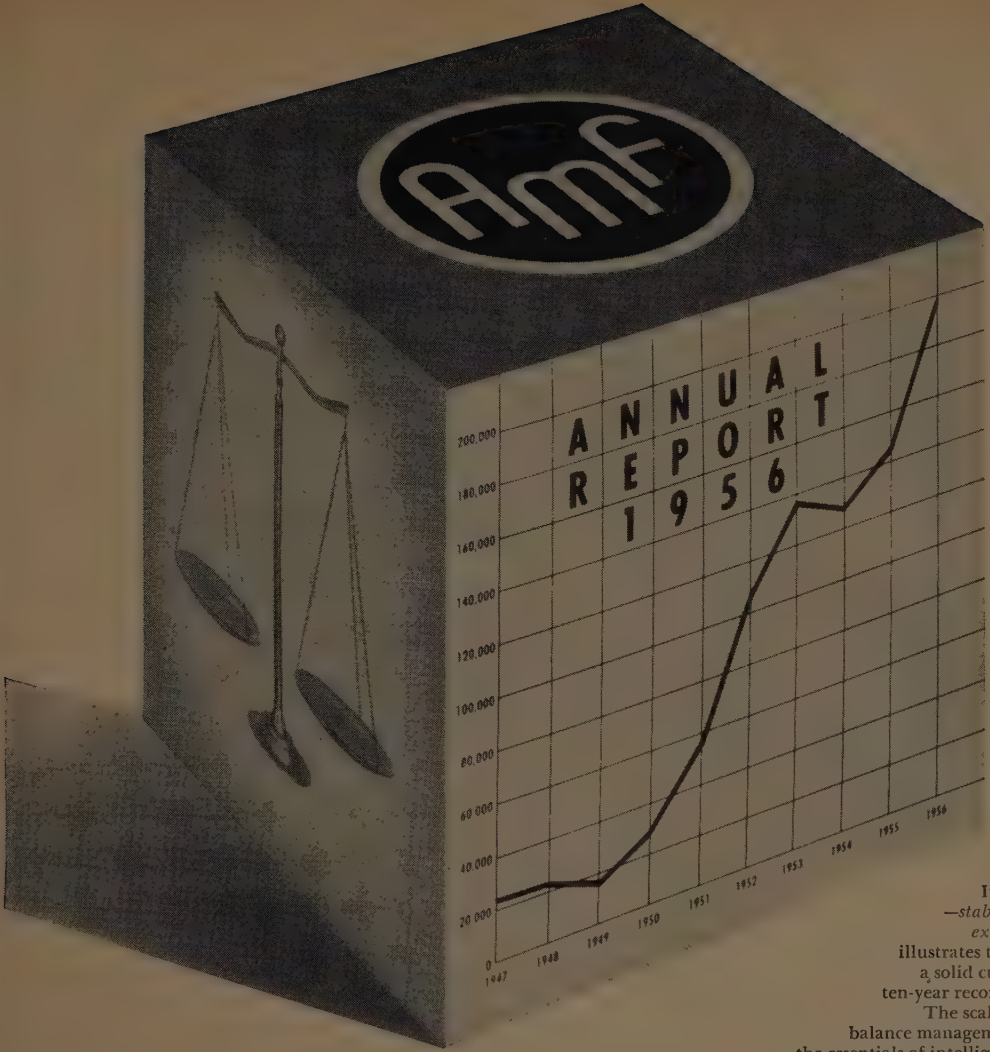
ST. PAUL • MINNESOTA

GENERAL PORTLAND CEMENT COMPANY

COMMON STOCK DIVIDEND

The Board of Directors of General Portland Cement Company has this day declared a quarterly dividend upon its Common Stock of 45 cents per share, payable March 30, 1957 to stockholders of record at the close of business on March 8, 1957. The stock transfer books will remain open.

HOWARD MILLER,
February 20, 1957 Treasurer



Interpreting the theme —*stability through planned expansion*—our designer illustrates the AMF insignia atop a solid cube, together with our ten-year record of sales and rentals. The scale signifies the delicate balance management must maintain in the essentials of intelligent forward planning. *Figures in chart are in thousands of dollars.*

AMF Posts Record Growth Year

Record 95% increase in net income after taxes and preferred dividends confirms success of "stability through planned expansion" program.

Sales & Rentals—$198,058,000
an increase of $53,057,000
—37% over 1955

Net income (after taxes and preferred dividends)—$8,621,000
an increase of $4,213,000
—95% over 1955

Today, our income is no longer dependent upon the profits of any one segment of our operations. This is a great advantage in assuring continuity of earnings in this time of rapidly changing markets and technological product changes. In each year the sources of our profit have varied, but the over-all profit has steadily increased.

We believe that 1957 will be a good year for the Company and we hope to establish further new records for sales, rentals and earnings. We fully expect that the next 10 years will witness not only growth in our sales and rentals but continued improvement in our profit margins. No effort will be spared to achieve these goals.

Morehead Patterson

Morehead Patterson
Chairman of the Board and President

We will be pleased to send you a copy of the Annual Report.

Mr. C. J. Johnson, Secretary
American Machine & Foundry Company
Executive Offices, AMF Bldg., Rm. 638A
261 Madison Ave., New York 16, N. Y.

Name ____________________

Address ____________________

City __________ Zone _____ State _____

AMF—Creators and Producers of Atomic, Electronic and Mechanical Equipment for the Consumer, Industry and Defense.

Copperweld Reports Record Year

1956 Sales Top $100-Million Mark

Copperweld reached a new milestone in its 41-year history when net sales for the year 1956 exceeded one hundred million dollars. The continued demand for the Company's products, coupled with the record-high level of industrial activity, resulted in an increase in sales of 28 per cent over 1955 and 20 per cent greater than 1953, the previous record-year.

Net earnings for the year were $3,440,872, the second highest of record and 45 per cent greater than 1955. Earnings applicable to the common stock for 1956 were equal to $4.08 per share compared with $2.81 for the previous year, notwithstanding an increase during the year of 5 per cent in the number of shares of common stock.

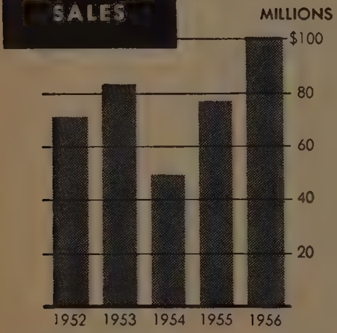
The Company seeks to expand its markets by a continuous program of research in metallurgy to develop new products, and to maintain and enhance its enviable position in the industries served.

Outlook for the year 1957 is favorable due in part to indications that a high level of national industrial activity will continue throughout the year. With the additional earnings expected to be realized from the completion of the modernization and expansion program during 1957, a year of satisfactory operations may be anticipated.

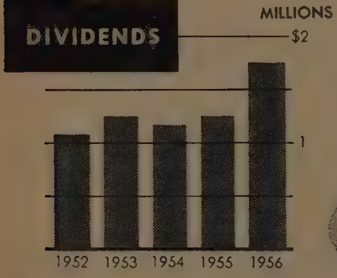
F R S Kaplan
CHAIRMAN OF BOARD

J M Harbaker
PRESIDENT

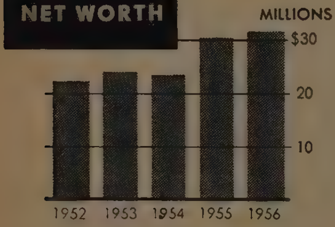
SALES



DIVIDENDS



NET WORTH



the story in figures

	1956	1955
Net sales	$100,541,926	$78,490,150
Net earnings	3,440,872	2,365,459
Dividends on common stock—per share	2.00	1.70
Working capital at year-end	16,266,620	18,601,781
Additions to plant and equipment	8,748,569	1,835,019
Average number of employees	4,287	3,972
Number of shareholders	6,582	6,687
Equity per share of common stock	$36.23	$34.56

COPPERWELD STEEL COMPANY

FRICK BUILDING, PITTSBURGH 19, PA.

COPPERWELD

We will be pleased to send you our 1956 Annual Report on request

STEEL DIVISION	WIRE AND CABLE DIVISION	OHIO SEAMLESS TUBE DIVISION	FLEXO WIRE DIVISION
ARISTOLOY STEELS	Copperweld	OSTUCO	FLEXO
Warren, Ohio	Glassport, Pa.	Shelby, Ohio	Oswego, N.Y.

Which Fire and Casualty Stocks?

ROBERT A. SJOSTROM

THE ARTICLE ON FIRE AND CASUALTY insurance stocks, entitled "Pauper and Prince," by Shelby Cullom Davis, was a stimulating addition to the November, 1956, edition of the JOURNAL. Certainly it was timely. The casualty insurance stocks are almost friendless. Many are selling at low multiples of investment income and substantial discounts from net asset value. If the past is any criterion, present prices may appear extremely low when normal insurance profits are restored, possibly a year or two hence. Fortunately, the secular growth of the industry persists; though cyclical, each swing of the pendulum moves the stocks higher, the high forms a new plateau, and the ensuing low point is not as far down as its predecessor.

It is difficult to go along with the emphasis Shelby Cullom Davis places on low multiples of investment income and large discounts from net asset value or liquidating value as the "fundamental ratios." Basically, fire and casualty insurance sotcks are regarded as growth investments because the industry has moved ahead more rapidly than our economy, and underlying factors presage a continuation of this trend. If this premise is sound, then the values to be sought are those in the future. Discounts from the liquidating value of a concern not to be liquidated are relatively unimportant over the longer term, and present investment income is of less import than probable future income which can support larger dividend payments.

The most successful investments in the fire and casualty insurance field have been the stocks of those enterprises which acquire new premium volume rapidly and earn better than average profits on such business. Primarily, growth of investment income is dependent on rising sales. The mere receipt of premium dollars provides investable funds and thereby additional assets augments revenues. This is true even if the new premium dollars result in only a break-even profit-wise. Naturally, if satisfactory profits are realized, their retention supplies further income-yielding assets.

Assets and investment income also rise due to successful investment. That has never been more true than during the past decade when the stock market moved sharply upward. Companies entrusting comparatively large segments of their new funds to common stocks consequently have experienced a more substantial increment to net asset value than have companies which placed major emphasis on fixed income securities. However, the market has not valued this type of asset amplification nearly as highly as the steady enhancement achieved through retained earnings.

The assertion is made here that the fire and casualty insurance companies giving the best market performance have

TABLE I

	Premium Growth		Indicated 10 Yr. Profit Margin	1955 Investment Income 1946=100	1955 Total Assets 1946=100
	Last 5 Yrs.	Last 10 Yrs.			
Aetna	32.5%	132.3%	3.0%	258	204
American Equitable	18.1	49.6	1.8	170	170
Continental Insurance	25.2	156.9	5.3	231	254
Fidelity Phenix	23.1	160.8	4.7	234	268
Fireman's Fund	46.8	189.0	5.5	246	233
Firemen's of Newark	31.9	174.3	2.4	340	281
Great American	42.5	197.1	3.0	287	264
Hartford	33.7	180.5	6.6	304	238
Home	23.8	183.2	3.2	264	268
Ins. Co. of No. America	52.9	260.7	6.6	300	308
National Union	39.6	196.1	3.5	342	264
St. Paul F & M	33.2	207.1	7.2	250	240
U. S. Fidelity & Gty.	68.1	267.4	5.8	368	297

TABLE II

GROWTH OF NET ASSET VALUE PER SHARE

	Net Asset Value		Increase		
	12/31/46	12/31/55	From Retained Earnings	From Capital Gains	Total
Aetna	$78.39	$119.68	$22.29	$19.00	$41.29
American Equitable	41.06	77.84	13.92	22.86	36.78
Continental Insurance	26.74	72.86	13.97	32.15	46.12
Fidelity Phenix	27.96	83.66	14.94	40.76	55.70
Fireman's Fund	51.28	75.06	21.43	2.35(a)	23.78
Firemen's of Newark	22.58	71.13	23.75	24.80	48.55
Great American	27.91	67.99	15.87	24.21	40.08
Hartford	66.27	155.22	61.15	27.80	88.95
Home	35.94	82.21	16.51	29.76	46.27
Ins. Co. of No. America	31.50	98.37	25.72	41.15	66.87
National Union	73.62	73.89	(b)	(b)	(b) 0.27
St. Paul F & M	18.68	42.76	18.38	5.70	24.08
U. S. Fidelity & Gty.	31.52	81.25	36.23	13.50	49.73

(a) Distorted by sale of additional stock at less than asset value. Stockholders received rights. Other capital gains amounted to $12.33 per share.

(b) Distorted by sales of additional stock at less than asset value. Stockholders received rights. Actually, retained earnings totaled $25.69 per share and other capital gains were $11.54.

enlarged their net asset value per share from retained earnings at the fastest rate. Some sell at large discounts from net asset value and some do not. In most instances their rate of growth is superior also. It is further asserted that discount from net asset value is related directly to insurance profit margins. In the absence of satisfactory profit margins, large discounts prevail.

Let us try to prove these statements step by step. The thirteen companies used in the tabulations are those mentioned by Mr. Davis. The data employed generally cover the period 1946-1955, and the operating figures include ten years. This is done because they are readily available in Best's Digest of Insurance Stocks, 1956 edition, and readers desiring to compare other insurance stocks with those shown here may do so easily.

As we look at Table I it is apparent that superior premuim growth has been demonstrated by U. S. Fidelity & Guaranty, Insurance Co. of North America, Fireman's Fund, Great American, St. Paul Fire & Marine, and National Union. At the lower end of the scale are American Equitable, Aetna, Home, Fidelity Phenix, and Continental. Over the nine-year period shown, rises in investment income and total assets have not paralleled premium growth, largely because of differences in investment practices. This is not surprising inasmuch as companies holding large portions of their portfolios in common stocks have benefited from a tremendous climb in the stock market. The Dow-Jones Industrial Average stood at 177.20 at the end of 1946 versus a recent level of about 500. Earnings per share of that average were only $13.63 in 1946, compared to $35.78 in 1955, and dividends amounted to $7.50 and $21.58, respectively. Under such circumstances substantial bond investors could hardly compete. Nevertheless, most of the aggressive premium gatherers boosted assets and investment income at better than average rates. To stray from the present list of companies for a moment, perhaps it should be pointed out that Continental Casualty, which achieved a premium growth of 353.3% in ten years, and Maryland Casualty, which expanded volume by 209.2%, topped all the companies listed in the climb of investment income. Also, their profit margins on insurance were 6.6% and 6.2%, respectively.

Now to turn to growth of net asset value per share. (The comparison is somewhat hard on Fireman's Fund and National Union because during the period they sold additional stock at less than asset value and thereby suffered dilution.)

Generally, the group did well although some required considerable assistance from the stock market. The item of net asset growth has always been important, yet unsatisfactory, because it is all-embracing, and usually becomes merely a historical record rather than the basis for future prognostication. In an effort to make some use of the data, the total increase in net asset value has been divided according to source. (Though approximate, the figures are close to total accuracy.) The division appears to shed some light. For example, during the period shown, Fidelity Phenix reflected an increase in asset value from $27.96 per share to $83.66, an excellent showing. Yet closer scrutiny indicates that retained earnings totaled only $14.94, whereas capital appreciation, realized and unrealized, was $40.76. Obviously, any statistical forecast of the company's future must eliminate the recurrence of such substantial capital gains. They may happen again; but, conversely, an adverse move in stock prices might well reduce the equity.

An examination of the rise in net worth from retained earnings alone should produce some criteria valuable in the marketplace of the future. Conclusions are founded upon anticipated continuance. The figures reveal some interesting facts. The companies with the best records of net asset growth from retained earnings alone are U. S. Fidelity and Guaranty, Firemen's of Newark, St. Paul Fire & Marine, Insurance Company of North America, and Hartford Fire. With the exception of Firemen's, all earn high profit margins on insured risks. The latter enterprise is unusual and interesting; though its insurance earning ratio is low, through the years it has pursued the practice of writing more business in relation to capital funds than its competitors, and thus taken full advantage of leverage. In some quarters this is considered risky, but the owners of Firemen's stock may take some convincing on that point.

Now let us see in Table III what the market did about the performance noted above. Once again the same five names appear at the top as measured by the rise from the mean price of 1946 to the present, although Continental Insurance and Fidelity Phenix have done well too, probably due to their excellent investment results. The table also indicates that the laggards in growth have done poorly marketwise. As could be expected, the superior companies also raised dividend payments appreciably and thereby enhanced their appeal.

Table IV indicates the relationship of present market prices to net asset values prevailing at the end of 1955, and includes the ten-year average profit margins of the several companies. Beyond question, the similarity between quality of business and market evaluations of net worth is striking.

THE SUMMARY VIEW

Seeking bargains because of comparative cheapness in static values could be a bit short-sighted. For instance, in Mr. Davis' story there is a tabulation that indicates that Aetna can be bought for only 11 times investment income, whereas Insurance Company of North America is twice as expensive. If past indications are valid, North America offers the better value. Mr. Davis further states that great statistical value may be found in American Equitable at a discount of 54% from liquidating value. This statistical value might be somewhat illusory because the record shows that since 1946 the minimum discount in this stock has been 37%.

TABLE III

	Mean Price 1946	Approx. Current Price	% Increase (Decrease)	1946 Div.	Current Div. Rate	% Increase
Aetna	54	76	41%	$1.80	$2.60	44%
American Equitable	21	34	62	1.00	1.90	90
Continental Insurance	22	52½	138	0.80	2.00	150
Fidelity Phenix	22	55¾	153	0.83	2.00	141
Fireman's Fund	43	58	35	1.25	1.80	44
Firemen's of Newark	14	35	150	0.50	1.30	160
Great American	19	38	100	0.75	1.50	100
Hartford	53	156	194	1.20	3.00	150
Home	29	42	45	1.20	2.00	67
Ins. Co. of No. America	28	98	250	0.87	2.50	188
National Union	44	38	(14)	1.25	2.00	60
St. Paul. F. & M.	18	53	194	0.50	1.20	140
U. S. Fidelity & Gty.	30	68	127	1.25	2.00	60

TABLE IV

	Present Market Price as % of Net Asset Value	10 Year Average Profit Margin
St. Paul F. & M.	124%	7.2%
Ins. Co. of North America	100	6.6
Hartford	100	6.6
U. S. F. & G.	84	5.8
Fireman's Fund	77	5.5
Continental Ins.	72	5.3
Fidelity Phenix	67	4.7
Aetna	63	3.0
Great American	56	3.0
Home	51	3.2
National Union	51	3.5
Firemen's of Newark	49	2.4
American Equitable	44	1.8

Perhaps this thought can be carried one step further. With all of the fire and casualty insurance stocks selling at depressed prices, well down from their highs, this might prove an advantageous moment to upgrade holdings. At present prices this writer would rather invest in Insurance Company of North America, Continental Casualty, U. S. Fidelity and Guaranty, Fireman's Fund, Maryland Casualty, Firemen's of Newark, and possibly Fidelity Phenix, the latter being included because of the trend to inflation which may enhance its common stock holdings.

OTHER FACTORS TO BE EVALUATED

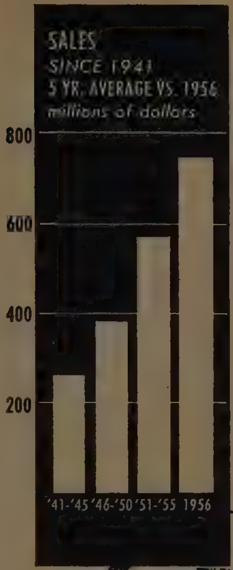
Outside the realm of controversy, but within the scope of the title of this article, are some other factors which should be examined also. Many of us through habit tend to consider that both the fire companies and their casualty counterparts are governed by the same set of conditions, but this is not so. The tendency is natural because the recent alteration of archaic statutes now permits companies to write both classes of business, and the lines of demarcation are breaking down gradually. Nevertheless, there are still many major insurance carriers which should be classed as either fire or casualty in the main. Casualty insurers generally have invaded the property field quite easily, whereas many fire writers have found the tuition fees high in the casualty industry.

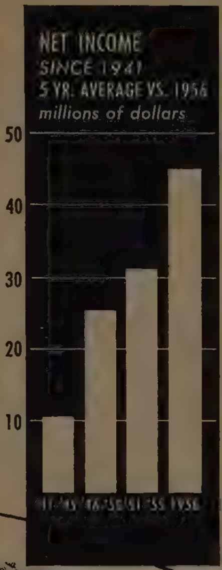
Both the near and long term implications favor the casualty side of the picture, so a plus accrues to the insurance stock investor who buys the casualty stocks or those multiple line enterprises with heavy casualty representation. As this is written, only three or four companies have reported 1956 earnings, but it is safe to asume that the results of both fire and casualty insurers were disappointing. However, here the comparison ends. Broadly speaking, the troubles of the casualty writers are simple, stemming from inadequate rates on auto liability policies (their largest single line), whereas difficulties in the property lines cannot be defined so easily or corrected so readily. Already many jurisdictions have granted premium rate increases on the auto liability line, some approaching 30%, and insurance executives generally believe that by the middle of 1957 most state insurance commissioners will have acceded to the well-defined need for adequate rates. If we may assume that this is correct, then time is the only other ingredient required to restore normal earning power.

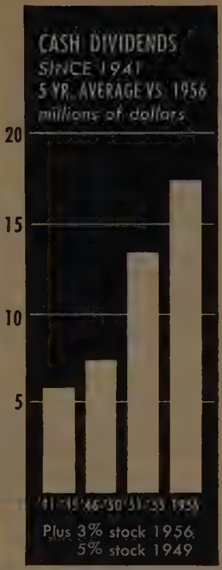
Over the longer term, casualty insurance should reflect the more rapid accretion in volume of business. Property insurance will generally keep pace with insurable values, although the post-war inflation has created some underinsurance, which we can assume will be corrected at some time. This is not the whole story, however. Better construction materials, improving fire prevention methods, and more alert fire control manpower with superior equipment are working constantly toward less costly fire insurance policies. These forces are substantial in effect. In 1951 straight fire insurance written by all stock companies in this country amounted to $1,300 million, and in 1955 had increased to only $1,317 million, while total fire and casualty business rose from $5,759 million to $7,662 million. Several property lines contributed to this growth but the major increases fell within the casualty categories. Our rising standard of living and the social consciousness of the American public should continue to accentuate the increase of the third party lines.

J&L . . . A GREAT NAME IN STEEL

J&L STEEL REPORTS 1956 PERFORMANCE AND PROGRESS . . .







For a copy of J&L's
1956 Annual Report, write to
Jones & Laughlin Steel Corporation,
511 Public Relations Dept.,
Pittsburgh 30, Pa.

From the 1956 Annual Report . . .

- 1956 sales reached a new high of $742,642,000 compared with $696,538,000 for 1955. Net income was $45,122,000 or $6.63 a common share compared with $50,104,000 or $7.39 a common share for 1955. Earnings were the second highest in our history, despite substantial non-recurring charges resulting from the 34-day steel industry strike and our current large capital program of cost reduction and expansion.
- 1956 cash dividends of $2.50 a share on the common stock compared with $2.25 a share in 1955. In addition, a 3% stock dividend was paid December 28, 1956.
- Ingot capacity should reach 7.5 million tons by the end of this year. This is an increase of 14% over present capacity and 58% over our 1946 capacity.
- On December 19, 1956, announcement was made of the agreement to transfer the assets and business of Rotary Electric Steel Company to J&L. If the transfer is consummated, it will mark the entrance of J&L into the rapidly-growing stainless steel field.
- Our steelmaking plants operated at 97% of rated ingot capacity during 1956 against a 90% rate for the industry.
- The extensive capital programs of cost reduction and expansion should, by the end of the current year, place J&L in an excellent competitive position.
- We look for a satisfactory rate of operations in 1957, and over-all prospects are quite encouraging.

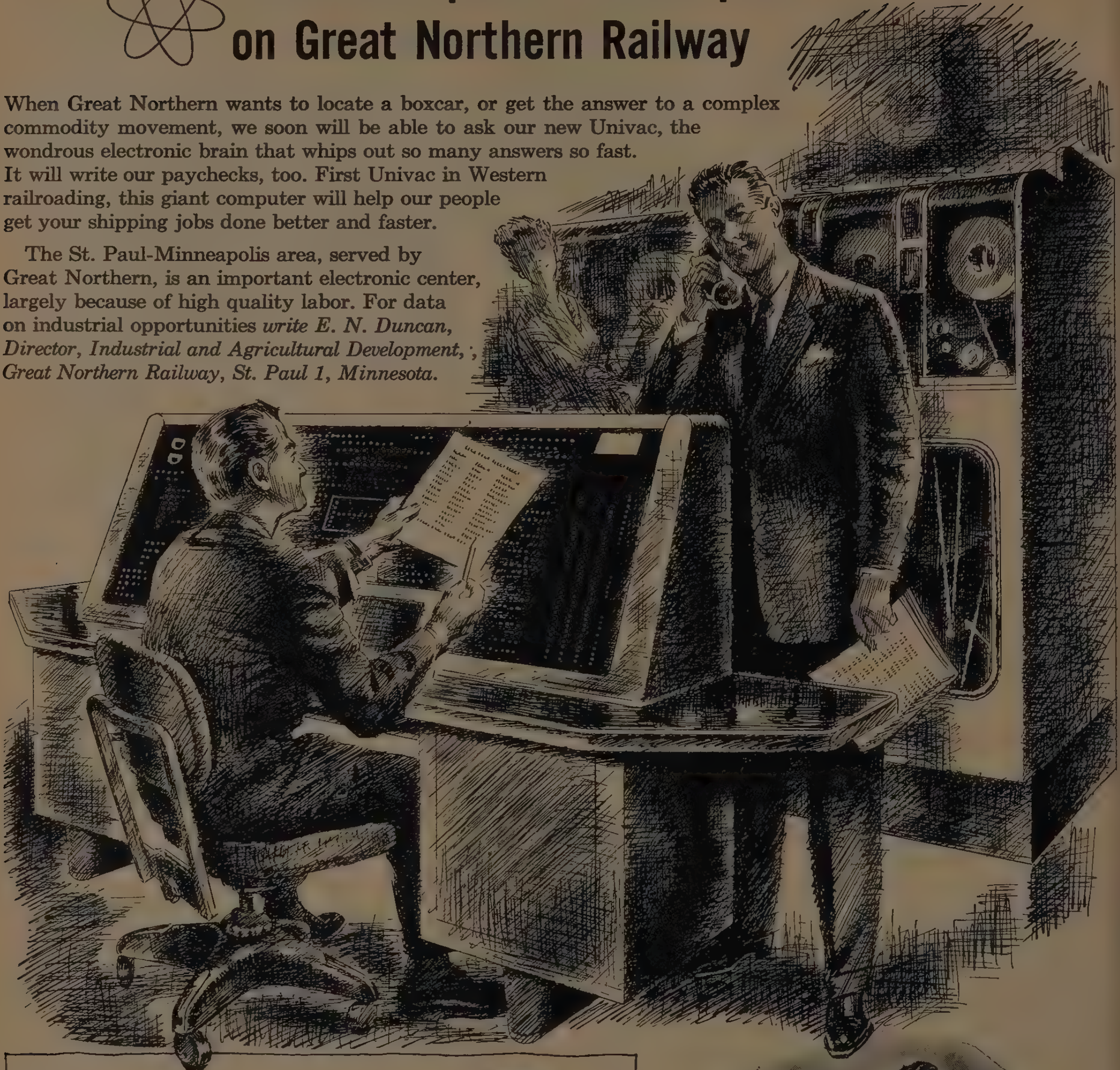
J&L STEEL

Jones & Laughlin
STEEL CORPORATION · PITTSBURGH

Electrons spark a faster pace on Great Northern Railway

When Great Northern wants to locate a boxcar, or get the answer to a complex commodity movement, we soon will be able to ask our new Univac, the wondrous electronic brain that whips out so many answers so fast. It will write our paychecks, too. First Univac in Western railroading, this giant computer will help our people get your shipping jobs done better and faster.

The St. Paul-Minneapolis area, served by Great Northern, is an important electronic center, largely because of high quality labor. For data on industrial opportunities *write E. N. Duncan, Director, Industrial and Agricultural Development, Great Northern Railway, St. Paul 1, Minnesota.*



Train radio is a commonplace on Great Northern today. A radio network for passenger and freight train operations now exists along our line from St. Paul to Seattle. This modern system of communications adds to the safety of passengers, train crews and shipments.

Let us show you how we can expedite the movement of *your* goods. *Write W. E. Nicholson, General Freight Traffic Mgr., Great Northern Railway, St. Paul 1, Minn.*

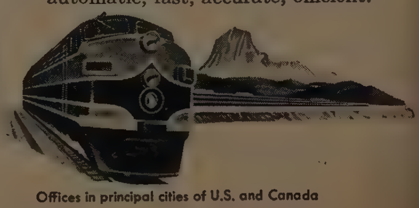
Electrons help us weigh iron ore—checking each precious gondola-load as it comes from the Mesabi Range in northern Minnesota to our docks at Allouez, Wisconsin. It's all automatic, fast, accurate, efficient.

Luxury by Push-button on the incomparable

EMPIRE BUILDER

A card table? Yes, sir! Your breakfast? Yes, sir! Your favorite beverage? Yes, sir! All this and more —just by pushing a button on Great Northern's incomparable EMPIRE BUILDER. No finer way to go between Chicago and the Pacific Northwest. For information, *write P. G. Holmes, Passenger Traffic Mgr., Great Northern Railway, St. Paul 1, Minn.*

GREAT NORTHERN RAILWAY



Offices in principal cities of U.S. and Canada

Peculiarities of Railroad Accounting

PETER KOCAN

UNTIL ONLY A FEW YEARS AGO, a conspicuous feature of railroad annual reports was that few were certified by independent public accountants. Stock exchanges do not require railroads to publish certified financial reports, and the Securities and Exchange Commission cannot do so because the Securities Acts of 1933 and 1934 largely exempt railroads from its regulation. The reason, apparently, is that railroad accounting was considered to be sufficiently regulated by the Interstate Commerce Commission, which has prescribed railroad accounting since 1914.

Despite the exemption, a handful of roads have had their accounts certified since before World War II, and in recent years the number has increased considerably. In most, but not all, of these instances the auditors report that the accounts were kept, not "in conformity with generally accepted accounting principles," but "in conformity with principles of accounting prescribed by the Interstate Commerce Commission." What are these ICC accounting principles that differ so much from generally accepted accounting principles that some public accounting firms amend their certificates accordingly?

A review of railroad accounting is long overdue. It is especially timely now because on January 1, 1957, important revisions in railroad balance sheet accounts went into effect. But before describing the revisions, some of the more important of the distinctive features of railroad accounting, particularly those of interest to the railroad investor and financial analyst, should be discussed. With some exceptions, these features are continued.

UNUSUAL CASH ACCOUNTING UNCHANGED

When you and I make out a check to pay a bill, we immediately reduce our cash balance in the check book. We do not wait until the bank gets around to send us the paid checks and bank statement. When we get the bank statement, the balance shown is usually higher than in the check book because of checks sent out but not yet cleared at the bank; but, assuming we made no error in our check book, we still consider the lower amount in the check book as our cash balance. We do not count as cash the amount in the bank that will pay off the outstanding checks.

That is what you and I do and most companies and most industries. So the reader of a balance sheet thinks that what is labeled cash in the balance sheet of the Here, There & Nowhere Railroad is the same as what is labeled cash on the balance sheet of the XYZ Steel & Foundry Co., the ABC Department Stores, Inc., etc. But if the HT&N is a typical railroad, cash is not the same. Because the typical railroad does not reduce its cash balance until the drafts clear the bank. While the accounts payable, payroll, and all other drafts are outstanding, the amounts remain in the cash account (and correspondingly in current liabilities). This practice means that, compared to other industries and companies, the typical railroad's cash account in the balance sheet is overstated, frequently in substantial amount and proportion.

Some roads claim that their cash accounting is correct because they pay their bills and employees by draft instead of check. The distinction between a check and a draft is purely technical—railroads use dafts as other companies use checks. Railroad cash accounting practice is all the more startling in view of the fact that the ICC accounting systems for bus and truck carriers in clearest terms require that drafts and checks be deducted from cash as issued.

TRAFFIC RECEIVABLES AND PAYABLES

If A owes B $7,500 and C owes A $10,000, generally accepted accounting principles require A's balance sheet to show the receivable from C as an asset, and to show separately as a liability the debt of $7,500 to B. It would be contrary to generally accepted accounting principles for A to show only a net receivable of $2,500 and no liability payable.

But this is just what railroads do every month for a highly important class of current receivables and payables, those arising with other railroads from the interchange of freight, interline passengers, freight cars, switching, etc. Assume that the HT&N at the end of a year finds it has interline balances with 100 railroads, that it owes 40 roads a total of $2,000,000, and that the other 60 owe it a total of $2,250,000. On its balance sheet only a net receivable of $2500,00 would appear, a figure completely unrepresentative of the state of affairs and of the amounts involved.

Sometimes railroads defend their balance sheet practice on the grounds that the amounts receivable and payable arise from ordinary month-to-month operations and that they usually are paid off within a month or two. All of that is true enough, and usually is true for most companies' trade receivables and payables. The reader may judge for himself the merit of the railroad practice and defense.

No change is being made in the accounting for traffic balances.

PROPERTY ACCOUNTS

The "heartland" of railroad accounting is the group of accounts relating to roadway, equipment, and depreciation. Here railroad accounting differs most significantly from standard or "generally accepted" accounting principles. Its impact on railroad financial reports and on management policy is important, so important that in spite of its complexity, a brief description of property and depreciation accounting is desirable.

In summary, railroad property accounting:

(1) Understates the cost of railroad property in use, in addition to and quite apart from considerations of reproduction cost and post-1940 inflation.

(2) Understates depreciation reserves and current depreciation charges, substituting for the latter, in part only,

highly variable and manageable maintenance and retirement charges.

(3) Tends to discourage current investment in track improvements on a rational long-term program basis, and tends to discourage such improvements absolutely.

PROPERTY COST SUBSTANTIALLY UNDERSTATED

About one-third of the total investment in Class I railroads in roadway and structures (as distinguished from rolling stock) is recorded at amounts substantially less than their cost—the cost that would be recorded were generally accepted accounting principles for property followed. The property that is understated includes ties, rails, track materials, ballast, and the related labor, the things that make a railroad a railroad.

The understatement occurs because the original cost of the material and labor at the time of first construction, 30, 60, or 100 years ago as the case may be, remains forever in the accounts so long as the line is in use. Every piece of the rail, ties, ballast, etc., may have been replaced a score of times since, but that cost at the time of construction remains on the books. If a railroad line were built at a time when rail cost, say, $20 a ton, ties cost 50c each, and labor cost 25c per hour, and now new rail and new ties are installed at current costs of $90 a ton, $3 a tie, and $1.75 per hour, respectively, the entire cost of the new rail, ties, and labor would be charged to expense. This is true regardless of possibly improved quality of the rail, regardless of a substitution of treated for untreated ties.

SOME EXCEPTIONS OCCUR

If the original rail weighed 75 lbs. per yard and the new rail weighs 90 lbs. per yard (i.e. heavier rail replaces lighter rail), a slight exception takes place. Part of the cost of the new rail applicable to the increased weight, in this instance 15/90th of $90 or $15, would be capitalized. So that the rail which costs $90 per ton would end up in the accounts at $35 per ton ($20 plus $15). Similar exceptions are made for heavier track materials and for substitution of stone ballast for gravel, gravel for cinders. A further exception is made for railroads reorganized since 1938. The ICC requires such roads to carry the materials costs of such property at the cost of the materials in place at the date of reorganization. But thereafter the roads account for changes in rail, ties, etc. in the normal railroad manner. These exceptions, it must be emphasized, cover materials costs only; entire cost of replacement labor is charged to expense in all instances.

The result is a set of figures on railroad balance sheets for roadway properties that do not reflect cost (as that word is ordinarily understood) of the materials or of the labor actually in the property in use, and that are in no way comparable to the cost of fixed assets shown on manufacturing companies', and for that matter any other industry's balance sheets. The figures understate cost disregarding post-1940 inflation because of higher cost for improved quality of steel, treating ties, etc. and because of the long-term secular increases in prices preceding 1941.

At the same time, the figures shown on balance sheets for property, with rare exceptions, do not represent an earnings base. Legally they might, but economically they do not. The figures are merely big, meaningless numbers.

The same group of track properties, the ties, rails, ballast, etc. comprising one-third of roadway and structures, is not depreciated and never has been, although they are eminent examples of depreciable assets. Most other depreciable assets are depreciated, but only since comparatively recent years. Depreciation of equipment (i.e. rolling stock) on a uniform basis did not begin until made compulsory in 1935. Depreciation of remaining roadway and structures accounts began only in 1943, no adjustment being made for prior years depreciation. Again an exception occurs for recently reorganized roads which have been required to estimate and record past accrued depreciation. But this exception affects only a limited number of roads and continues to leave track property undepreciated. Considering that the peak of railroad construction took place in the 1880's and 1890's, that the U. S. railroad plant was practically complete by 1914, that depreciation did not begin until 1943, and that one-third of roadway property is not depreciated at all, the amount and proportion of unrecorded depreciation must be large indeed.

ROADWAY DEPRECIATION RATES ARE LOW

Depreciation rates for the portion of the roadway property that is depreciated tend to be on the low side. The rates used are dominated by the engineering consideration of useable lives, with little or no weight given to economics, relocations, obsolescence, etc. as factors influencing property lives. The result is road depreciation provisions that appear to be distinctly low from an accounting view and ineffective as a means of internal financing.

The thought expressed in the preceding paragraph may be challenged by arguing that annual roadway maintenance and retirement charges are higher to compensate for lower depreciation charges, so that looking at the income statement only, there is no difference between the results obtained under the present accounting method and what would be obtained were standard property and depreciation accounting followed. This is merely a variant on the argument for the retirement method of accounting, long since discarded by industries other than railroads.

It is true, no doubt, that in occasional years, corresponding with high earnings, roadway maintenance expenses may equal or exceed the amount that would be charged under depreciation accounting. The opposite occurs in poorer earnings years. That is why railroad managements like this kind of accounting (more on this later) and why financial analysts spent so much time studying maintenance policies and expenditures.

OTHER DEPRECIATION RATES ARE FAIR

Because of dieselization, shorter lives of passenger and freight cars, and the passage of 20 years, depreciation reserves for rolling stock equipment probably are not understated significantly. Current depreciation rates for equipment probably are fair enough too, provided it is understood that they are based primarily on physically useable lives rather than on shorter lives giving effect to obsolescense, economic replacement policy, or similar non-physical factors. But then, some readers no doubt will observe that the accounting merely follows the practice.

SYSTEMATIC IMPROVEMENTS DISCOURAGED

Because track maintenance and capital expenditures are so largely intermingled, property improvements which other industries would capitalize, are charged to expense by railroads. One obvious and widely known consequence, therefore, is that track improvements as well as ordinary maintenance are made with an eye to their effect on reported net income. The consequence is inevitable. No railroad management could undertake a major rail replacement program or what have you, when all or most of the cost is charged immediately to expense, without considering reported net income. Thus, although a prominent example of a long-term industry, we get the well-known phenomenon of railroad improvements expenditures varying enormously from year to year, depending far more on revenues and earnings of the individual years than on long-run engineering and financial judgments.

This criticism, primarily, is of the timing, year to year, of railroad property replacement and improvement policies. A harsher criticism, one that has not received so much attention, is that the accounting system may tend to discourage absolutely major track improvement. Returning to our earlier example, if the line to be renewed were lengthy, total expenditures might easily be hundreds of thousands of dollars or more. The benefits might well be expected to endure for ten, fifteen or more years. But if the entire amount is charged off in the year of work, you get not only poor accounting but, in an industry in which the earnings are as marginal and volatile as the railroads, a positive deterrent to invest for the future. For track projects of major size, desirable but essential for operation, even availability of earnings in good years may be insufficient to encourage investment.

Or consider a management contemplating the installation of welded rail. Welded rail is a significant departure from the traditional jointed rail. It was practically unknown when the ICC property accounting system was written. Nevertheless, when welded rail is installed today, the entire cost of the rail (assuming no increase in weight) and of the labor is charged to expense. Moreover, the labor cost includes not only the tracklaying but also the welding labor, a completely new, and expensive, cost element. But no recognition is given to the change in the art of track construction. Welding labor, along with the rest, goes to expense.

ORIGIN OF RAILROAD PROPERTY ACCOUNTING

For the most part, the strange set of affairs, as it appears to us, is due to the industry itself. The ICC, especially in the 1920s, was well aware of how the accounting for track and for depreciation differed from good practice. It attempted for years to get the railroads to adopt good standard practice, but was able to succeed only in part.

The conflict between the ICC and the railroads over fixed asset and depreciation accounting reached its peak in the hearings, proceedings, and orders under docket 15100 (118 ICC 295 and 177 ICC 351). This case lasted from the early 1920s to 1943. The Commission's accounting orders were suspended numerous times, to reappear later in weakened form. The railroads were determined to resist conventional accounting for capital improvements and depreciation, for the entire range of fixed assets. Their objections were strongest as to the track accounts. The result, the final orders that emerged, was a compromise in which more or less standard accounting was adopted for all except the track accounts.

Many reasons were offered by the railroads for their position except the one that probably is the likeliest: current railroad property accounting minimizes inflexible depreciation expense, maximizes managements' ability to influence reported net income by judicious timing and withholding of expenditures and retirements.

SHOULD ANYTHING BE DONE?

The reader may have noted that the first criticism of railroad property accounting is that, entirely apart from the post-1940 change in the value of the dollar, it results in "cost" figures vastly understated compared to the plant cost of other industries. The second criticism is that, with only a partial exception for recently reorganized roads, plant investment is substantially overstated because railroads fail to record depreciation for past years and for the track accounts. We also know that as a matter of economics and investor valuation, most railroads' properties are stated at amounts far higher than present and anticipated earnings can support (again with occasional exceptions such as recently reorganized roads). Any change in accounting rules that would result in increased fixed asset valuation, therefore, should be viewed skeptically, regardless of conventional accounting rules. On the contrary, what seems to be called for is a scaling down of the net balance sheet investment in railroad plant. From this point of view depreciation reserves and provisions should be raised, but the "cost" should be left alone.

Perhaps more important, at least as an immediate matter, is the objection to the present accounting method as a deterrent to desirable current track investment. Possibly such investments, if of major size and expected to be of lasting benefit, should be capitalized or deferred initially and written off to expense ratably over a reasonably short period of years. The ICC, on occasion, permits this sort of thing for retirements of property chargeable to expense, which relate entirely to the past and are of no benefit to the future, so why not capital improvements? Such a solution smacks of makeshift expediency, but may be more likely of attainment than the complete overhaul of property and depreciation accounting that is indicated.

SURPLUS NOT COMPARABLE TO OTHER INDUSTRIES

In the revision of the balance sheet accounts effective January 1, 1957, the term Retained Income is substituted for Earned Surplus, in line with the current trend in corporate practice generally. In other, more serious ways, however, surplus is used in a manner far different from industry generally. Two major criticisms of ICC accounting for surplus are: (1) the excessive variety and number of minor transactions, adjustments, corrections, and the like

Fig. 1—OLD BALANCE SHEET

	ASSETS
Investments:	
701	Road and equipment property
702	Improvements on leased property
702½A	Acquisition adjustment
702½B	Donations and grants—Cr.
	Investment in transportation property
702½C	Accrued depreciation—Road
702½D	Accrued depreciation—Equipment
702½E	Accrued amortization of defense projects—Road
702½F	Accrued amortization of defense projects—Equipment
	Investment in transportation property less recorded depreciation and amortization
703	Sinking funds
704	Capital and other reserve funds
704½	Maintenance funds
705	Miscellaneous physical property
705½	Accrued depreciation—Miscellaneous physical property
	Miscellaneous physical property less recorded depreciation
706	Investments in affiliated companies
707	Other investments
707½	Reserve for adjustment of investment in securities
	Total
Current Assets:	
708	Cash
709	Temporary cash investments
711	Special deposits
712	Loans and bills receivable
713	Traffic and car-service balances—Dr.
714	Net balance receivable from agents and conductors
715	Miscellaneous accounts receivable
716	Material and supplies
717	Interest and dividends receivable
718	Accrued accounts receivable
719	Other current assets
	Total
Deferred Assets:	
720	Working fund advances
721	Insurance and other funds
722	Other deferred assets
	Total
Unadjusted Debits:	
723	Prepayments
725	Discount on funded debt
726	Property retired chargeable to operating expenses
727	Other unadjusted debits
	Total
	Total assets

	LIABILITIES
Stock:	
751	Capital stock
752	Stock liability for conversion
753	Premiums and assessments on capital stock
754	Discount on capital stock
	Total
Long Term Debt:	
755	Funded debt unmatured
755½	Debit in default
756	Receivers' and trustees' securities
756½	Equipment obligations
757	Amounts payable to affiliated companies
	Total
Current Liabilities:	
758	Loans and bills payable
759	Traffic and car-service balances—Cr.
760	Audited accounts and wages payable
761	Miscellaneous accounts payable
762	Interest matured unpaid
763	Dividends matured unpaid
764	Unmatured interest accrued
765	Unmatured dividends declared
766	Accrued accounts payable
767	Taxes accrued
768	Other current liabilities
	Total
Deferred Liabilities:	
769	Pension and welfare reserves
769½	Interest in default
770	Other deferred liabilities
	Total
Unadjusted Credits:	
772	Premium on funded debt
773	Insurance reserves
773½	Equalization reserves
774	Maintenance reserves
778	Other unadjusted credits
779	Accrued depreciation—Leased property
	Total
Surplus:	
784	Unearned surplus:
	Paid-in
	Other unearned surplus
785	Earned surplus—Appropriated
786	Earned surplus—Unappropriated
	Total
	Total liabilities

that now must be entered directly to the account, and (2) the lack of control over use of the account by railroads to absorb alleged "non-recurring", "unusual", "distorting", etc. income items and amounts.

VARIETY OF PRESCRIBED DIRECT SURPLUS ITEMS

To take the first criticism, the present system requires, among others, the following kinds of entries to be made to surplus, regardless of amount:

1. Gains and losses from sales of land.
2. Gains and losses from sales of investments.
3. Gains and losses from sales of miscellaneous physical property.
4. Collections of receivables previously written off.
5. Payments of liabilities previously written off.
6. Adjustments and cancelations of balance sheet accounts.
7. Many kinds of minor governmental fines and penalties.
8. Charitable contributions and donations.
9. Uncollectible traffic receivables.

Fig 2.—NEW BALANCE SHEET

ASSETS

Current Assets:
701 Cash
702 Temporary cash investments
703 Special deposits
704 Loans and notes receivable
705 Traffic and car-service balances—Dr.
706 Net balances receivable from agents and conductors
707 Miscellaneous accounts receivable
708 Interest and dividends receivable
709 Accrued accounts receivable
710 Working fund advances
711 Prepayments
712 Material and supplies
713 Other current assets
Total current assets

Special Funds:
715 Sinking funds
716 Capital and other reserve funds
717 Insurance and other funds
Total special funds

Investments:
721 Investments in affiliated companies
722 Other investments
723 Reserve for adjustment of investments in securities—Cr.
Total investments

Properties:
731 Road and equipment property
732 Improvements on leased property
733 Acquisition adjustment
734 Donations and grants—Cr.
Total transportation property
735 Accrued depreciation—Road and equipment
736 Amortization of defense projects—Road and equipment
Total transportation property less recorded depreciation and amortization
737 Miscellaneous physical property
738 Accrued depreciation—Miscellaneous physical property
Miscellaneous physical property less recorded depreciation
Total properties less recorded depreciation and amortization

Other Assets and Deferred Charges:
741 Other assets
742 Unamortized discount on long-term debt
743 Other deferred charges
Total other assets and deferred charges

Total assets

LIABILITIES AND SHAREHOLDERS' EQUITY

Current Liabilities:
751 Loans and notes payable
752 Traffic and car-service balances—Cr.
753 Audited accounts and wages payable
754 Miscellaneous accounts payable
755 Interest matured unpaid
756 Dividends matured unpaid
757 Unmatured interest accrued
758 Unmatured dividends declared
759 Accrued accounts payable
760 Taxes accrued
761 Other Current liabilities
Total current liabilities

Long-Term Debt:
765 Funded debt unmatured
766 Equipment obligations
767 Receivers' and Trustees' securities
768 Debt in default
769 Amounts payable to affiliated companies
Total long-term debt (due within one year $)

Reserves:
771 Pension and welfare reserves
772 Insurance reserves
773 Equalization reserves
774 Casualty and other reserves
Total reserves

Other Liabilities and Deferred Credits:
781 Interest in default
782 Other liabilities
783 Unamortized premium on long-term debt
784 Other deferred credits
785 Accrued depreciation—Leased Property
Total other liabilities and deferred credits

Shareholders' Equity:
Capital stock (par or stated value):
791 Capital stock issued
792 Stock liability for conversion
793 Discount on capital stock
Total capital stock
Capital surplus:
794 Premiums and assessments on capital stock
795 Paid-in surplus
796 Other capital surplus
Total capital surplus
Retained income:
797 Retained income—Appropriated
798 Retained income—Unappropriated
Total retained income
Total shareholders' equity
Total liabilities and shareholders' equity

The transactions listed above have to be made to surplus regardless of amount and that they are common, year-in and year-out items for any large railroad. As can readily be imagined, such transactions are numerous and result in dozens of monthly surplus entries, immaterial singly and combined.

There seems to be little reason why such entries should not be made directly to the income accounts. If the Commission wishes any of these items segregated from income, in the belief that they are non-operating, there is ample provision in the accounts to charge them "below the line", i.e. to income deductions not allowable for railroad rate-making purposes. Surplus accounts should not be cluttered with inconsequential items and amounts.

USE OF SURPLUS TO ABSORB "NON-RECURRING", "DELAYED", ETC. ITEMS

The other matter, of the treatment of large income amounts alleged to be "non-recurring", "distorting", "related to past operations", etc. is more serious. The text and instructions in the accounting classification seem to indicate that the Commission's intention is that all items preferably should be charged or credited to the income accounts they would go to ordinarily. Carriers also are given the option to charge and credit such amounts to accounts titled Delayed Income Debits and Credits, which accounts are in the other income and income deductions sections of the income statement. In addition, the text to the surplus accounts is broad enough to permit such amounts to go directly to surplus.

The results of this three way choice are (a) the delayed income accounts are used rarely, and (b) major "non-recurring", et al items are disposed of to either the income or surplus accounts largely as the individual road desires. As might be expected with this freedom, the practice of individual railroad companies varies greatly, from railroads which substantially restrict surplus entries to net income and dividends, comparable to SEC-regulated companies, to railroads which are influenced by considerations of reported net income and other expendiencies.

The Commission can exercise some control over such large surplus entries if it learns of them before they are made or before the year end. But if the entries are made in December, as often they are, the ICC probably would have no knowledge of them until after the accounts are closed, net income published, and the stockholders' report distributed. In such a situation the ICC understandably is reluctant to order the accounting changed retroactively.

There is no good reason why railroads should not be compelled to observe the same requirements for the use of surplus as do other industries. Surplus entries should be restricted to net income, dividends, appropriations and capital changes, with major "distorting", et al items either in the normal income accounts, or if sufficiently large and unusual in a special items section just before the final net income transferred to surplus, more or less the policy recommended in the American Institute of Accountants' Accounting Research Bulletin 43 and prescribed by the Securities and Exchange Commission.

INCOME REPORTING AND FAST DEPRECIATION

The faults in the accounting for fixed assets, depreciation and surplus correspondingly affect the reporting of net income. The discussion of surplus, moreover, should show that a statement of changes in surplus is as essential to the study of a railroad's earnings as its income statement. Other deficiencies of income reporting could be cited, but only one will be mentioned here. It has received some notice in recent years: the income tax "savings" obtained from certificates of necessity.

Since 1950 railroads have received many such certificates permitting them to deduct on their tax returns varying portions of the cost of locomotives, cars, etc. bought, over a five year period instead of over the much longer normal life. But on their books railroads may use only the normal depreciation rates approved by the ICC. If no adjustment is made, net income reported in the early years is increased by the amount of the tax reduction arising from the fast depreciation. The tax reduction is temporary. It will be succeeded by higher taxes and decreased net income in later years as the certificates run out and book depreciation charges become non-deductible for taxes. All that really happened, therefore, is that railroads have gotten an interest-free loan, which is highly desirable but is not income.

Most companies take care of this situation, if they do not record the "fast" depreciation on their books, by reducing reported net income and increasing liabilities for the estimated tax reduction. In later years the additional tax paid is charged against the liability already provided. Thus the reported net income is not affected either in early or late years by transactions which are essentially financial and not income.

The ICC, however, forbids railroads from recording such deferred tax liabilities on their books, and also forbids them from recording depreciation at other than normal rates. One result, therefore, is that reported net income of railroads since 1950 contains large amounts of temporary income tax deferrals which in no sense should properly be considered income.

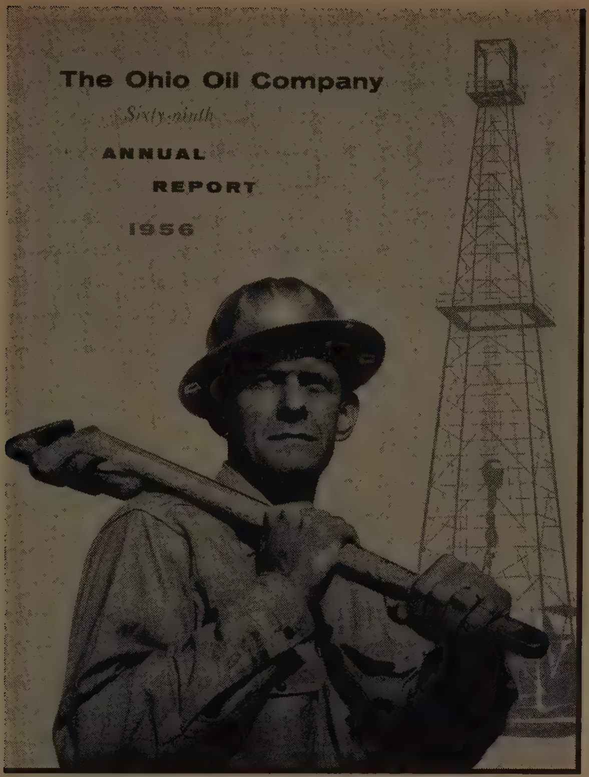
CHANGES IN THE BALANCE SHEET

In the accompanying illustration the old and new balance sheets are shown. The most obvious changes are in form and they are all to the good: the placing of current assets and liabilities at the top instead of obscurely in the middle; the grouping of stockholders' equity accounts under one caption; the separate grouping of physical assets apart from investments; the junking of the "junk" accounts Other Unadjusted Debits and Credits.

The first point, of the "down-grading" of fixed assets and "up-grading" of current assets and liabilities is of some further importance. The old arrangement in which fixed assets and stock and debt were shown first has been restricted for many years chiefly to regulated companies. The change in the form marks a notable and commendable "break" in the regulatory front.

* * *

"Accounting conventions should be well conceived in relation to at least three things: first, the uses of accounts; second, the social and economic concepts of the time and place; and, third, the modes of thought of the people."—*George O. May.*



The Ohio Oil Company
Sixty-ninth
ANNUAL
REPORT
1956

A company of people...a record of progress

Our greater effort in 1956 brought stepped-up exploration at home and abroad . . . new records in production, transportation, and refined product sales . . . and continued *sharing* of this progress with employees, shareholders, customers and the public.

FINANCIAL	**1956**	**1955**
Net Income	$41,216,000	$41,255,000
Net Income per Share	$3.14	$3.14
Dividends per Share	$1.60	$1.55
Capital Expenditures	$52,440,000	$39,049,000
Exploration Expense	$24,544,000	$21,982,000
OPERATING		
Net Crude Oil and Natural Gas Liquids Produced — Barrels per Day	108,355	105,111
Natural Gas Produced and Sold — Thousand Cubic Feet per Day	282,284	255,513
Crude Oil Transported — Million Barrel-Miles	25,837	23,150
Refined Products Transported — Million Barrel-Miles	1,485	1,225
Crude Oil Refined — Barrels per Day	42,421	42,421
Refined Products Sold — Barrels per Day	41,112	40,817

For a copy of our complete 1956 Annual Report, write the Secretary,

THE OHIO OIL COMPANY
Findlay, Ohio

Producers • Transporters • Refiners • Marketers of Marathon Petroleum Products

RESEARCH

and Dollars and Cents . . .

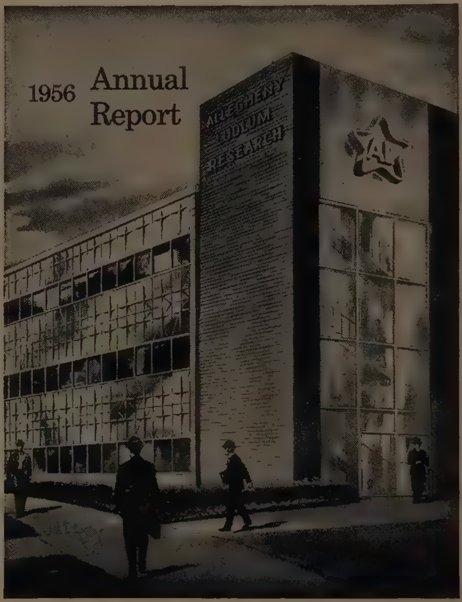
"It is difficult to measure the effectiveness of research, but an indication of its importance to our company is that in 1956 about one-sixth of our sales and an even greater percentage of our profits came from products we did not make five years ago."

—Allegheny Ludlum Annual Report, 1956

REPORT IN BRIEF

	1956	1955
Sales and Revenues	$287,078,052	$255,587,054
Depreciation and Amortization	11,337,277	10,861,722
Federal Income Taxes	16,867,000	16,554,000
Net Earnings	15,261,090	14,985,660
Earnings per Share of Common Stock (After Preferred Dividends)	$4.04	$4.12*
Ratio of Net Earnings to Sales and Revenues	5.32%	5.86%
Dividends, Common Stock	$ 6,382,144	$ 4,030,086
Dividends per Common Share	$1.70	$1.17*
Working Capital at December 31	61,760,622	48,721,490
Long-Term Debt	39,609,900	30,276,000
Stockholders' Investment (Net Worth)	101,074,081	90,849,921
Net Worth per Common Share	$26.73	$24.41*
Capital Expenditures	16,280,000	7,297,000
Stock Outstanding at December 31		
Common	3,781,667	3,555,412*
Preferred	—	40,572†
Number of Employees at December 31	15,994	14,778
Number of Common Stockholders at December 31	18,462	14,950

*Adjusted for two-for-one stock split of January 6, 1956.
†Redeemed or converted by January 16, 1956.



For your copy of the 1956 Annual Report of Allegheny Ludlum Steel Corporation, write to Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.

SUMMARY: The year 1956 brought to Allegheny Ludlum new and challenging opportunities in the field of high alloy steels and special metals.

Expanding markets and products—A variety of important new applications for our established stainless and electrical steels continued to widen the markets for these products. Titanium and zirconium processing are increasing very rapidly. Our new vacuum melted alloys have also met enthusiastic demand.

Capacity operations—These expanding requirements for our products taxed finishing capacity throughout the year. Despite the five weeks' strike, sales reached a new high. Completions of additional production equipment will make possible greater output in 1957.

Earnings maintained—Higher material costs and labor cost increases resulting from the wage settlement in mid-year forced price increases for our products. Despite strike losses, earnings were higher than those of the previous year. Dividends were increased to 50¢ per share in the final quarter, thereby giving stockholders a return on the earnings reinvested by the company in recent years.

Financial position strengthened—Steps taken early in the year to strengthen the company's financial position included conversion of preferred stock and a two-for-one split of the common stock. Sale of new debentures made possible repayment of short-term loans, some prepayment on long term loans, and added to working capital.

Capital outlays continue high—Expenditures on new facilities to expand output of our products were stepped up in 1956. Planning to meet future sales indicates the need for continuing large capital outlays in 1957 and later years.

Intensified research—The extent to which new metallurgical improvements have already affected the company's products, alloys and processing is considered only an indication of the dynamic future impact expected from greatly expanded research and centralization of research activities in 1957.

Three-year employee agreements—The company reached agreement in August with the employees' unions, granting certain wage increases and other employee benefits. The agreement provides a firm basis for sound employee relationships during the next two and a half years.

Promising outlook—Despite easing of demand for certain products, first quarter 1957 results should be good. Backlogs are still substantial, although lead time for many products is short. It is expected that 1957 may better the results of 1956.

H. G. BATCHELLER
Chairman

E. J. HANLEY
President

ALLEGHENY LUDLUM STEEL CORPORATION

OLIVER BUILDING, PITTSBURGH 22, PA.

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STAINLESS ★ ELECTRICAL ★ TOOL AND DIE STEELS ★ HIGH TEMPERATURE ALLOYS ★ SPECIAL METALS

A Discussion of Benjamin Graham's Central Value Concept

ROBERT D. TUCKER

BENJAMIN GRAHAM, CO-AUTHOR OF *Security Analysis*[1] with David L. Dodd, has stated that he has long been intrigued by the fact that the value of a stock can and does differ from its price. Economists have been concerned with value and price for even longer and generally reduce price to the proposition that it is nothing more than value expressed in terms of money. If this definition of price is valid, then both should be at the same dollar figure. Graham holds that in securities this is not necessarily the case. Security Analysts owe their very existence to the concept that value and price do not coincide. "Overpriced" and "underpriced" are adjectives repeatedly used in an analytical description of a security. The meaning is that in the analyst's opinion a going price may not be indicative of either a present value or future value determined at some specified rate of compound discount.

CENTRAL VALUE

In the Second Edition (1940) it is stated (page 686) that one method of determining "normal" value is to apply "a suitable multiplier to average earnings." This was the general approach used by Roger Babson prior to 1925 and still is a common method. In Graham & Dodd's Third Edition (1951), a specific application of this suggested procedure is given in a Table (page 671) which shows the calculation by Formula of Central Value of the Dow-Jones Industrial Average 1924-1951 inclusive. Central Value is determined for each year by dividing the average earnings of the Dow-Jones stocks for the previous 10 years by twice the yield of Moody's Aaa Corporate bonds in April of the same year.

In any formula approach to value determination, certain assumptions must be made as is the case in most theoretical concepts. Graham has two basic assumptions:

1. That two times the yield afforded by Moody's Aaa Corporate bonds each April is a satisfactory capitalization rate.
2. That an arithmetic average of actual earnings for the 10 previous years is indicative of "normal" earnings for the year under discussion.

THE CAPITALIZATION RATE

It could be contended that there might be a more realistic way to conceive a capitalization rate since even the yearly average of yields has corresponded only roughly over recent years to the April rate, as is apparent in Table I. These changes, although minor in themselves, produce significantly wide differences in capital value. For instance, if unweighted average earnings of $25.25 for the 10 years prior to 1956 are capitalized at two times the April, 1956, rate of 3.24%, the capital value becomes 389.7. If, however, the estimated average 1956 rate of 3.36% is used, this value drops to 375.7, or by 14 points.

One may reason, too, since earnings are averaged, should not the capitalization rate be treated in the same statistical manner? If, for instance, one uses the average rate of interest for the 10 years prior to 1956 and divides twice this rate into the average earnings for the same period, theoretical central value for 1956 become 451.7 instead of 389.7 as Graham's basic approach would show it. This is interesting in that 451.7 is but about 8% below the actual 1956 Dow-Jones Industrial mean of 491.8, whereas the central value as computed on the April 1956 yield basis is away by over 20%.

THE INFLUENCE OF INTEREST RATES

Interest rates, very potent influences in value determination, are even more unpredictable than earnings since they are subject to overnight change. With high-grade bonds in late December, 1956, affording a return of about 3.75%, a central value computed on almost any valid concept of historical average or consistent single-month interest rate can cause significant variations in results. Average earnings for the past 10 years capitalized at the present (late December 1956) rate show a central value of only about 366, for example, well over 100 points away from the actual Dow-Jones Industrials during this period.

The conclusion one reaches is that although Graham's use of the rate in April of each year, as the basis for capitalization, albeit arbitrary and at times distorting, produces no less valid results in the calculation of a central value than any other arbitrary yield selected to be the "going" rate of interest. A doubling of some actual yield in any event is consistent with the lay approach that stocks, to be attractive, should return about twice as much as high-grade bonds.

Table I

April Yields Compared with Yearly Average Yields—
Moody's Aaa Corporate Bonds

Years	April	Yearly Average
1956	3.24%	3.36%(est.)
1955	3.01	3.06
1954	2.85	2.90
1953	3.23	3.20
1952	2.93	2.96
1951	2.87	2.86
1950	2.60	2.62
1949	2.70	2.66
1948	2.78	2.82
1947	2.53	2.61
1946	2.46	2.53
1945	2.61	2.62
1944	2.74	2.72
1943	2.76	2.73
1942	2.83	2.83
1941	2.82	2.77
1940	2.82	2.84

Source: Moody's Industrial Manual, 1956, p. A19.

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[1] *Security Analysis*, Graham & Dodd, McGraw-Hill Book Co., Inc., New York (1934) (1940) (1951).

TABLE II

FORMULAE COMPUTATION OF CENTRAL VALUES OF DOW JONES INDUSTRIAL AVERAGE

Year	Actual Earnings by Years	Arithmetic Avg. Earnings 10 Previous Yrs.	Weighted Avg. Earnings 10 Previous Yrs.	Yield of Moody's all Corp. Aaa Bonds April Each Year	Capitalization Rate (Two times Bond Yield	CENTRAL VALUES		NORMAL RANGE FROM CENTRAL VALUES				Industrial Yearly Range	
						Average Earnings Basis	Weighted Earnings Basis	Average Earnings Basis		Weighted Earnings Basis			
								80%	120%	80%	120%	Low	High
1957	$ -	$27.47	$29.78	3.75%(E)	7.50%(E)	366.3	397.1	293.0	439.6	317.7	476.5	-	-
1956	35.80(E)	25.25	27.86	3.24	6.48	389.7	429.9	311.8	467.6	343.9	515.9	462.4	521.1
1955	35.78	22.73	25.49	3.01	6.02	377.6	423.4	302.1	453.1	338.7	508.1	338.2	488.4
1954	28.40	20.90	24.12	2.85	5.70	366.7	423.2	293.4	440.0	338.6	507.8	279.9	404.4
1953	27.23	19.15	22.65	3.23	6.46	296.4	350.6	237.1	355.7	280.5	420.7	255.5	293.8
1952	24.76	17.59	21.35	2.93	5.86	300.2	364.3	240.2	360.2	291.4	437.2	265.4	292.0
1951	26.59	16.10(a)	19.44	2.87	5.74	280.5(a)	338.7	224.4(a)	336.6(a)	271.0	406.4	239.0	276.4
1950	30.70	14.12(a)	16.43	2.60	5.20	271.5(a)	316.0	217.2(a)	325.8(a)	252.8	379.2	196.8	235.5(a)
1949	23.54	12.68(a)	14.45	2.70	5.40	234.8(a)	267.6	187.8(a)	281.8(a)	214.1	321.1	161.6	200.5
1948	23.07	10.97	12.25	2.78	5.56	197.3	220.3	157.8	236.8	176.2	264.4	165.4	193.2
1947	18.80	10.24	10.69	2.53	5.06	202.4	211.3	161.9	242.8	169.0	253.6	163.2	186.9
1946	13.63	9.88	10.01	2.46	4.92	200.8	203.5	160.7	241.0	162.8	244.2	163.1	212.5
1945	10.56	9.46	9.81	2.61	5.22	181.2	187.9	145.0	217.5	150.3	225.5	151.4	195.8
1944	10.07	8.85	9.59	2.74	5.48	161.5	175.0	129.2	193.8	140.0	210.0	134.2	152.5
1943	9.74	8.08	9.29	2.76	5.52	146.4	168.3	117.1	175.7	134.6	202.0	119.3	145.8
1942	9.22	7.11	8.90	2.83	5.66	125.6	157.2	100.5	150.7	125.8	188.6	92.9	119.7
1941	11.64	6.35	7.94	2.82	5.64	112.6	140.8	90.1	135.1	112.6	169.0	106.3	133.6
1940	10.92	6.36	7.11	2.82	5.64	112.8	126.1	90.2	135.2	100.9	151.3	111.8	152.8

(E) Estimated

(a) These figures differ slightly from those used in table given in Note 6 of Appendix, Page 671, Security Analysis, Graham & Dodd, McGraw-Hill Book Co. New York, Third Edition (1951).

AS TO EARNINGS

The second assumption made by Graham, that average earnings are indicative of "normal", is open to more reasonable conjecture. This concept negates any importance to the trend of earnings during the decades. Considering the total efforts being made to minimize fluctuations in earnings and employment through laws and Governmental fiscal policies, the up-trend seems a more important factor in a valuation procedure today than the mere flattening of changes from year to year as accomplished by the arithmetic mean approach. This is not to say that Mr. Graham is not fully cognizant of the importance of trend, and his use of the arithmetic mean rather than a weighted average was possibly because both methods produced generally comparable results up to 1951.

COMPARISONS

The comparison of central values for the Dow Jones Industrials as developed by the two different methods of establishing earnings, using identical capitalization rates, appears in Table II.

It may be taken as significant that the weighted method compares better with the actual average Dow Jones Industrial level in both 1955 and 1956 and forecasts a probable higher level for 1957 than would be anticipated by Graham's method, but both methods point toward a lower central value in 1957 than 1956. Average earnings by both methods are higher for 1957 but the estimated capitalization rate of 7.50% for April, 1957, compares with an average capitalization rate of but 5.62% since 1940. Over a long period of years Graham's Central Value correlates more closely with Dow Jones results than does the use of weighted earnings. The Security Analyst must choose between empirical evidence and what importance he places on the probability for success of a managed growth economy in the years yet to come.

ACCURATE CALCULATIONS

Perhaps Central Value is more accurately calculated by capitalizing five-year or three-year weighted earnings. Future earnings developed by some extension method of past results could be another possibility. Singularly, in the quest to determine how closely price measures value, if earnings on the Dow Jones Industrials are estimated at $35.80 and the late December high-grade bond yield is taken as being 3.75%, a capitalized value is 477.3. In the last 5 weeks of 1956, price as measured by the Dow Jones Industrial Average has closed both below and above this figure.

It would be a happy conclusion to shout Eureka to Central Value Theory. If analysts could control market pressures and temperatures for a period of time as can a chemist who studies behaviors of elements, it is probable that comparably successful research would ensue. The analyst, unfortunately, must reckon with such imponderables as human fear, optimism, courage and hope. Perhaps it is not possible to unscrew the inscrutable.

BRITISH COLUMBIA POWER CORPORATION, LIMITED

and Subsidiary Companies

CONSOLIDATED STATEMENT OF INCOME

for the Year Ended 31 December 1956

(with corresponding figures for the year ended 31 December 1955)

	1956	1955
Gross revenue from operations	$68,323,799	$63,442,639
Deduct—		
Employment costs, materials and outside services, etc.	$30,837,061	$28,711,913
Provision for depreciation	8,402,477	8,151,735
Required for government:		
Provision for taxes on income	9,318,400	8,692,988
Property taxes	2,568,430	2,301,579
Other charges	950,461	930,668
Total operating expenses	$52,076,829	$48,788,883
Operating income	$16,246,970	$14,653,756
Add—		
Non-operating income:		
Net return from temporary and other investments	783,892	548,632
Profit through redemption of bonds at less, in the net, than principal amount	31,591	29,472
Interest charged to construction	2,747,403	1,177,426
	$19,809,856	$16,409.286
Deduct—		
Interest on bond debt	$ 7,039,969	$ 5,763,976
Amortization of bond discount and expense:		
Refunded issues	80,208	80,208
Outstanding issues	315,817	275,657
	$ 7,435,994	$ 6,119,841
Net income for the year	$12,373,862	$10,289,445
Deduct—		
Dividends on shares of subsidiaries owned by the public:		
British Columbia Electric Company Limited	$ 3,618,336	$ 3,282,936
British Columbia Electric Railway Company Limited	49,281	50,414
	$ 3,667,617	$ 3,333,350
Earnings for the year on Common Shares of parent company:		
Amount	$ 8,706,245	$ 6,956,095
Per share outstanding at year-end	$2.34	$2.05

CONSOLIDATED STATEMENT OF EARNINGS EMPLOYED IN THE BUSINESS

for the Year Ended 31 December 1956

(with corresponding figures for the year ended 31 December 1955)

	1956	1955
As at the beginning of the year	$12,557,587	$ 9,926,544
Add—		
Earnings on Common Shares of parent company per Consolidated Statement of Income	8,706,245	6,956,095
Excess provisions for prior years' taxes on income	391,100	—
	$21,654,932	$16,882,639
Deduct—		
Expenses on issue of Common Shares of parent company	$ 28,498	$ 27,169
Fees to increase authorized share capital of British Columbia Electric Company Limited	22,500	—
Commission and expenses on issue of Cumulative Redeemable Preferred Shares of British Columbia Electric Company Limited	1,420,709	536,894
	$ 1,471,707	$ 564,063
	$20,183,225	$16,318,576
Deduct—		
Dividends on Common Shares of parent company	4,922,300	3,760,989
As at the end of the year	$15,260,925	$12,557,587

Note: Copies of the complete Annual Report may be obtained by writing British Columbia Power Corporation, Limited, 970 Burrard Street, Vancouver 1, B.C.

The Radio Corporation of America in 1956 did the largest volume of business in its 37-year history. For the second year in succession sales exceeded one billion dollars.

Sales of products and services amounted to $1,127,774,000 in 1956, compared with $1,055,266,000 in 1955, an increase of 7 per cent.

Net profit before Federal income taxes was $80,074,000, and after taxes, $40,031,000. Earnings per share of Common Stock were $2.65 in 1956, as compared with $3.16 in 1955.

The Corporation's Federal income taxes, social security taxes, property taxes and other state and local taxes totaled $55,633,000 in 1956. In addition, the Corporation paid excise taxes of $32,170,000, making the total 1956 tax bill $87,803,000, an amount equivalent to $6.31 per Common share.

Dividends totaling $23,965,000 were declared by RCA in 1956. This included $3.50 per share on the Preferred Stock. Dividends on the Common Stock were $1.50 per share, the same as in 1955.

Color television continued to advance in 1956 with public interest stimulated by the RCA Victor line of new and simplified 21-inch color sets. Regular color programming on NBC was increased during the year and is being further increased in 1957. More programs should result in more sales of color TV sets and stimulate growth of the industry.

Engaged in the development of electronics as a science, art and industry, RCA is dedicated to pioneering and research, and to production of electronic instruments and systems of quality, dependability and usefulness. To the full extent of its resources and facilities, the Corporation contributes to the national security and expanding economy of the country. As one of the leading industrial organizations in the United States, RCA aims to advance the progress of radio-television, to provide new and improved service to the public, and to strengthen the pre-eminence of the United States in international communications.

David Sarnoff

Chairman of the Board

RESULTS AT A GLANCE

From RCA 1956 Annual Report

	1956	1955
Products and Services Sold	$1,127,774,000	$1,055,266,000
Per cent increase over previous year	6.9%	12.1%
Profit Before Federal Taxes on Income	80,074,000	100,107,000
Per cent to products and services sold	7.1%	9.5%
Per common share	5.53	6.91
Federal Taxes on Income	40,043,000	52,582,000
Per cent to profit before Federal taxes on income	50.0%	52.5%
Per common share	2.88	3.75
Net Profit	40,031,000	47,525,000
Per cent to products and services sold	3.5%	4.5%
Per common share	2.65	3.16
Preferred Dividends Declared	3,153,000	3,153,000
Per share	3.50	3.50
Common Dividends Declared	20,812,000	20,901,000
Per share	1.50	1.50
Total Dividends Declared	23,965,000	24,054,000
Reinvested Earnings at Year End	222,087,000	206,020,000
Stockholders' Equity at Year End	273,753,000	257,682,000
Long Term Debt at Year End	249,996,000	250,000,000
Working Capital at Year End	300,839,000	327,175,000
Ratio of current assets to current liabilities	3.0 to 1	3.1 to 1
Additions to Plant and Equipment	57,517,000	31,039,000
Depreciation of Plant and Equipment	22,609,000	19,123,000
Net Plant and Equipment at Year End	189,972,000	157,994,000
Number of Employees at Close of Year	80,000	78,500

BOARD OF DIRECTORS

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Tmk (s) ®

RADIO CORPORATION OF AMERICA
ELECTRONICS FOR LIVING

Forecasting Nickel Demand to 1965

HENRY D. LYTTON

IN DEALING WITH FEW INDUSTRIES dependent upon a basic commodity is the security analyst faced with more problems and less readily available trend information than in the case of the nickel industry.

This paper attempts to elaborate the foregoing statement and to present some basic findings useful to the reader in (a) assaying long-term factors associated with nickel demand in the United States during the past 46 years and in (b) assessing the probable future course of that demand over the next nine years.

The development of the approach followed in this discussion has been described in two privately reproduced study reports completed in the late summer of 1956. The forecasts of nickel demand contained in the reports were slightly revised and extended in a press statement dated October 30, 1956, following new supply-demand developments.

At the later date, additional allowances were included in the projections, for two uses which may assume considerable proportions within the ensuing decade. This article will take into account preliminary 1956 annual data and further developments in the industry situation since October.

NICKEL PRODUCERS AND CONSUMERS

The nickel demand situation will have greater or less impact upon any individual security, depending upon such things as the extent of nickel's importance in each company's operations, geographical areas of prouction and distribution, availability of smelting and refining facilities, integration of fabricating operations, expansion plans, Government purchase contracts, cost-price relationships, nationality of the nickel company, type and essentiality of nickel-bearing products manufactured, and so forth.

On the producing side, the International Nickel Company and the Sherritt-Gordon Mines Limited produce nickel in Canada and sell it in North America and Europe; the M. A. Hanna Company and the National Lead Company produce and distribute nickel in the United States, as ferronickel and as a refining by-product, respectively; both National Lead and the Freeport Sulphur Company have actually produced nickel in Cuba, the former now operating the Government-owned plant there, while the latter has been scheduled to produce nickel from its own ore there in the next one or two years; Bethlehem Steel Corporation is a potential large Cuban producer and Falconbridge Nickel Mines Limited and La Societe Le Nickel mine nickel ore in Canada and New Caledonia, respectively, and refine and sell nickel in Europe. There are several smaller mining and smelting companies active in Canada, of which Nickel Rim Mines Limited and Eastern Mining & Smelting Corporation Limited are examples.

In United States consuming channels, there are about 83 plants rated as important nickel "melters" in the steel industry, excluding duplications as between the 60 engineering-alloy and 40 stainless-steel alloy melters involved. These plants may represent about two-score separate parent steel corporations altogether. There are also about 68 larger melters in the non-ferrous alloy and casting, electroplating, non-ferrous high-temperature and electrical-resistance alloy, and iron alloy and casting industries. To this should be added about 1,800 smaller melters, such as captive and independent nickel-plating plants in the automotive and plating industries and the manufacturers of chemical products based on nickel, magnets, and ceramics. The importance of nickel costs and availability varies between considerable extremes in many of these cases.

A PLETHORA OF PROBLEMS

One of the major difficulties impeding an understanding of the nickel situation results from the fact that nickel has been a stockpiled material. This means that, as in the case of other stockpiled items, stockpile purchase operations swell total nickel disappearance as long as they last, and make important differences in total nickel sales as soon as they stop.[1] To get around this, the analysis will attempt to measure demand for immediate consumption purposes only, i.e., factory demand. This obviates any necessity to estimate stockpile demand in the past, present, or future.

A second difficulty flows from the excessive military nature of much recent nickel consumption. A certain amount of military business is apparently normal in the industry. In both World Wars I and II military needs rose to a very high fraction of total consumption volume, reaching around 65% in the last half of 1944. After both wars, with the cancellation of war orders, the proportion must have fallen precipitously. During the windup phase of the Korean War period, in the last part of 1953, military and related uses were reported at the 40% level. after which they apparently reached a lower level in 1954-1955. Now, based on ODM's original set-aside for the fourth quarter of 1956, they have returned to the 40% level. To surmount the obstacle presented by the abnormal size and unbalanced composition (product mix as between ferrous and non-ferrous products) of war-time consumption, the analysis will exclude war-time years from any statistical correlations used to formulate demand.

There are still further perplexities to be faced, however. The possibility exists that even normal peace-time consumption has not always been equated with demand. To the extent that any persistent tendency in this direction could be in effect, it could mean that any formula straddling most of the last 46 years could tend to understate basic demand tendencies. The only organized data noted refer to the last third of this period. It may be significant that complaints of prolonged nickel shortages during this period are especially numerous, although not always justified by the ensuing demand correlations. On the other hand, in view of nickel industry expressed concern over the possibility of consumers designing-away permanently from the use of nickel, any allowances for the recapture of supposedly lost markets for nickel must be approached conservatively. This analysis will attempt to superimpose judicious estimates of approximate post-World War II market displacement upon the basic normal demand to be arrived at by long-term statistical relationships.

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[1] Footnotes appear at end of article.

As a final problem, the recent doubling of the rate of jet-engine and related usage of nickel-bearing super-alloy stainless steels between 1955 and the second quarter of 1956 tends to upset the formula approach. This suggests the advisability of a further allowance, based on judgmental estimates of further increases in the next nine years, to be added to any basic-demand projections. (The same thing applies to a possible allowance for such a totally new use as nickel-bearing super-alloy stainless steel for possible gas-turbine automobile engines.)

LONG-TERM FACTORS ASSOCIATED WITH NICKEL DEMAND

It may now be stated that, at bottom, the factory demand for nickel, as reflected in its peace-time consumption over normal periods during the last 46 years, is determined by two factors: (1) the tonnage of low-alloy (engineering-alloy) steel and stainless-steel alloy ingots produced; and (2) the physical volume of durable goods produced.

It will be recognized that both factors are reflections of particular segments of total industrial production; that the second factor includes the first, and is in turn included in total industrial production; and that the latter itself responds to such still broader influences as population, real purchasing power, and so forth. Broader indicators might therefore be desired. By trial and error it has been found that a single scatter diagram of total nickel consumption versus such a broad factor as total steel production (alloy plus carbon) yields a somewhat uncertain and diffused, if not split, central area of relationship.

By contrast, a pair of scatter diagrams of that part of nickel consumption accounted for by the steel industry, versus alloy-steel production (factor No. 1 above); and of that part of nickel consumption accounted for by all other industries — 98% in the durable-goods category — versus durable goods production (factor No. 2 above); yield obvious lines of relationship. The lines may be approximated graphically and straight-line formulae derived as follows:

A. Steel's demand for nickel $= \frac{\text{alloy-steel production}}{200}$, less 4,000; and

B. Other demand for nickel = FRB Durables Index × 583-1/3, less 13,000;

all items being expressed in tons except the FRB Index, which is expressed in points.[2]

For the two formulae added together and treated as a single equation, based on 23 years selected as normal (after discarding 23 other years as war-time years, missing-data years, years out of range of the formulae, or years affected by events in Europe or shortage in the United States), the adjusted standard eror of estimate is about 6,700 tons. This figure may be considered in conjunction with average consumption in the same years of 35,000 tons and recent consumption of 110,000 to 125,000 tons.

On the same composite-formula basis, the adjusted correlation coefficient is about +.95; and the adjusted 95% fiduciary limits of the latter are between approximately +.98 and +.89 for the given small-size sample.

LACK OF AVAILABLE LONG-TERM TREND DATA

It is realized that no analyst can turn to one source and obtain the consumption data since 1911 necessary to make the above correlation analyses. However, early-year tonnages of nickel used in steel-making may be read by eye from a chart presented at a 1930 American Iron and Steel Institute meeting; intermediate-year percentages of nickel used in steel-making may be assumed from International Nickel Company annual reviews, with interpolations added;[3] and similar late-year data may be taken from declassified War Production Board records and from post-war Bureau of Mines Yearbooks.

Moreover, total nickel consumption is reported for early years in the Yearbook for 1939; intermediate years' corresponding data are available in Materials Survey—Nickel, made for the Bureau during Korea; and latest years are available in the Yearbooks. Then non-steel usage of nickel is obtained by subtraction.

Finally, the FRB Durables Index, non-existent for the years prior to 1919, can be assumed as indicated by total steel ingot production (stated in millions of tons); trusting that the coincidence of the index with the latter throughout the years 1919-1940 would apply also in the earlier years.

The two components of nickel consumption were further divided into eight sub-divisions. The trends of consumption in the latter were then compared with available trend information on comparable sub-indicators where possible. By this and other means, the general applicability of the two main component data series on nickel consumption, derived as they were from several different sources, were further tested, conformed, and ultimately accepted as usable for the purpose in mind.

1955-1956 DATA—ACTUAL VERSUS CALCULATED

The data for 1955, which are available in final form, may be used to illustrate use of the formulae. These data are: Alloy steel production, 10,600,000 tons; FRB Durables Index, 155 points; nickel consumption in steel, 44,700 tons; and nickel consumption ex-steel, 65,200 tons. Substituting by formulae, we have:

A. Nickel demand for steel $= \frac{10{,}600{,}000}{200} - 4{,}000 = 49{,}000$ (actual consumption: 44,700); and

B. Nickel demand ex-for steel = 155 × 583-1/3 — 13,000 = 77,400 (actual consumption: 65,200).

Summarizing the two formulae:

C. Total demand = 53,000 + 90,400 — 17,000 = 126,400 (actual consumption: 109,900); and the overall unfilled demand in 1955 was of course 16,500 tons, or 13%, on this basis.

1956 data are not yet fully available, but 11 months' nickel consumption suggests that 47,400 tons went into steel and 77,600 elsewhere, for a total of 125,000 tons in all of 1956. Calculating demand on the basis of reported alloy steel production of 10,400,000 tons in 1956, and the Durable Goods Index arithmetic mean of 159 points for the first 11 months of 1956, last year's nickel demand is set at 48,000 tons for the steel industry, 79,800 tons for other industries, and 127,800 tons altogether.

The over-all unfilled demand in 1956 was only 2,800 tons on this basis, or 2%.

The calculations so far have followed the formula approach. This approach has successfully side-stepped the stockpile problem because stockpile receipts are not included in either the composition of calculated demand or the scope of factory consumption. (By comparison, net total domestic supplies of new nickel, adjusted for factory stock changes, in 1955 were around 145,000 tons. Factories consumed about 110,000 tons of this total, leaving about 35,000 tons for inventory building on the part of suppliers and the stockpile. In 1956 the total disappearance may be above 150,000 tons, with 125,000 tons going into immediate consumption and a consequent more than 25,000 tons into inventory-building and stockpiling.)

This approach has also avoided the war-time abnormalcy problem, as much as currently possible. We have been at peace recently, but on a cold-war footing, while the formula is based on 23 fairly normal peace-time years in past nickel history. (Military and related needs—we do not know how much is strictly military—may have increased slightly in the last two years, rising to 40%. However, in subsequent years it may be hoped that this percentage will recede as cold-war mobilization becomes further stabilized. In any case, with total "normal demand" nearly in line with the supply available for factory consumption, any recession in the requirements of this first-priority claimant should be matched by re-entrance into the market of equivalent quantities of civilian orders.)

POST-WORLD WAR II MARKET DISPLACEMENT

This is not the whole story, by any means, because the problem of market displacement of nickel by other materials has next to be considered. Plentiful evidence has been amassed by the Department of Commerce and its industry task groups on nickel that industry has been suffering from an under-supply of the metal, and would use more of it if it could get it.

As previously remarked, the only organized data on which reliance may be placed, dealing with nickel consumption in various markets, cover only the last third of the 46-year period (1911-1956) used in the formula. Here we must start with 1946 or 1947 or 1948, depending upon when war-time dislocations may have ended, in order to measure normal post-war displacement. This will be done for four different markets:

(1) In low-alloy steel markets, nickel's weighted share[4] of the production of the 15 grades of low-alloy steel ingots dropped from 17% in 1946-1947 to 9% in 1955 (and 8 1/3% in 1956). In 1955, only 18,200 tons of nickel were used; but if the proportion had been 17% instead of 9%, an additional 16,550 tons would have been used.

(2) In stainless steel, nickel-bearing grades dropped from 73½% of total ingot production in 1946 to 54½% in 1955 (and 61½% in 1956). In 1955, only 26,500 tons of nickel were used; but if the proportion had held at 73½%, an additional 9,000 tons would have been consumed. Adding a further 3,000 tons for the greater nickel-content of the 1955 tonnage of super-alloy stainless steel ingots brings the total displacement in this market to 12,000 tons.

Total lost business in the steel industry in 1955 was 28,550 tons, on this basis.

(3) In one of the largest non-steel markets, the nonferrous alloy industry, nickel usage has likewise fallen behind potentialities. If it had kept pace with durable-goods production generally, it would have risen 54% from 1947 to 1955, since the durables index increased from 101 to 155 in that period. However, nickel usage fell instead, from 27,400 to 25,600 tons. The displacement is estimated at a sizeable 14,400 tons.

(4) In the other largest non-steel market, the electroplating industry, nickel consumption also has suffered considerably. Platers' supplies of nickel were presumably adequate in 1948, when 16,200 tons of nickel were used in electroplating. In that year four million cars, among other extensively "nickel-plated" articles, were turned out. One would expect to see a roughly proportionate increase in nickel used in 1955, when twice as many automobiles were assembled. (This is undoubtedly the largest plating outlet. The writer has no figures at hand on automotive-industry plating tonnage.) Yet only 16,600 tons were consumed. Assuming an added 50% could have been sold indicates 8,300 tons as the amount of sales lost.

Total lost business in the non-steel industries in 1955 was 22,700 tons, on this basis; and in all industries combined, 51,250 tons.

The adjustment in the formula was then made as follows: Assuming a condition of full supply, and that markets in which nickel was designed-away from could be regained, actual sales of 109,900 tons in 1955 could have been pushed up 51,250 tons to 161,150 tons. The formula adjustment to bring the basic demand calculation of 126,400 tons for 1955 up to that level is 34,750 tons.

PROJECTING THE BASIC FORMULA ESTIMATES TO 1965

To estimate minimum factory demand ten full calendar years ahead, in July of last year the writer started with 1955 figures, estimated 1956, and then projected the latter through 1965. Assuming 1956 steel production at 115 million tons, alloy steel at 9% thereof, and alloy tonnage at 10.4 million tons (all of which has now been proven correct), gave a 1956 demand estimate of 48,000 tons for the steel industry.

Projecting long-term steel production trends forward from 1955 (117 million tons total, including two millions for current military) at a conservative 2½ million ton annual rate gave 142 million tons requirement in 1965 for "High-Level Civilian Demand," of which two million would be military. Again conservatively, no increase in the alloy ratio of 9% was postulated. The resulting alloy-steel output projection was 12.8 million tons. This meant 60,000 tons of nickel demand in 1965.

Also in July 1956 the writer assumed a 1956 durables production index of 155 (4 points too low) and obtained a corresponding 1956 demand estimate of 77,400 tons for the non-steel industries.

Projecting the FRB Durables component forward from 1955 to 1965 would be a difficult matter. It was avoided by merely considering past relationships of steel production to durables production. Here, two successive downward displacements at the expense of steel production were encountered. (A given durables level was associated with less steel output after World War II, and a still lower steel output after Korea.) A somewhat conservative approach was considered to be the averaging of 1955 and first-quarter 1956 relationships.[5] The resulting index projection, based on 142 million tons of steel, was 173½ index points. This meant 88,000 tons of nickel demand in 1965.

The over-all minimum demand projection for 1965 was 148,000 tons, according to the formula and the assumptions applied in the projecting process. The latter imply: (a) no war and (b) no depression, in order to experience "high-level civilian demand." This minimum ignores most of the post-World War II market displacement.

MAKING ALLOWANCE FOR RECAPTURE OF LOST MARKETS

This basic formula projection must be increased by the potential additional sales for which the formula did not provide in the base-year used, 1955. That means that the previously determined allowance of 34,750 tons must be added on to the basic 148,000 tons, increasing the projection to 182,750 tons.

A minor additional allowance became necessary halfway through 1956, when it became apparent that the stainless-steel industry would have to use a further 5,000 tons extra nickel in super alloys in the whole year, just to keep otherwise balanced with 1955. (Stainless steel has now slightly edged 1955, with a new record over-all output of 1,210,569 tons.) This made the revised projection 187,750 tons.

It would have been futile to expect that any of the post-World War II net lost sales of 34,750 tons could have been regained in 1956, when the stockpile was still heavily in the market and the supply available to industry was still below the basic-formula demand level. Stockpiling operations have now been at least interrupted for several months and the supply picture is looking much better. A form of "nickel rush" has been reported in Canada, in fact.

Considerable indications now exist that the supply of nickel will in the next few years be augmented in Canada, Cuba, and the United States sufficiently to provide a chance to recapture all lost markets that can be regained. This could take place on a progressive scale and be completed well before 1965. At any rate, the ODM expansion goal for nickel has been set many months ago at 220,000 tons per annum.

The last adjustments to the formula projection have to be made. In mid-1956, it was noted that super-alloy stainless-steel ingot output had actually doubled the 1955 rate in the second quarter of 1956, responsive to jet-engine needs. Fourth-quarter 1956 super alloys showed only a slight increase over the second quarter. However this may be, 1956 set a new record, higher than Korea, and military needs have been forecasted as likely to quadruple. 1956 nickel-bearing super alloys reported by the steel industry totalled 62,000 tons and may have required over 12,000 tons of nickel. On the other hand, the Bureau of Mines indicates almost 12,000 tons of nickel used last year in making what the present paper has had to classify as super-alloy products of the "non-steel" industries—mostly containing over 35% nickel, over 15% chromium, and under 50% iron. Yet more than one-sixth of the "stainless-steel" super alloys mentioned above have under 66% iron content and at least one alloy in the group has as little as 2% iron! Despite some overlapping, it is still probable that much or most of the 24,000 tons in question is not duplicated.

Since civil needs for these two types of alloys, for jet liners, must lag behind military, a quadrupling of over-all demand might be too liberal a basis for projecting 1965 conditions. Considering probable additional needs for supersonic and hypersonic aircraft and missiles, an adjustment of an additional 36,000 tons in 1965 nickel demand does not seem unwarranted.

A final adjustment would allow possibly 4 pounds of nickel (in 20 pounds of super-alloy stainless steel) in each of 10 million gas-turbine powered automobiles in 1965, or a further 20,000 tons.

Thus, total maximum nickel demand in 1965 could conceivably reach 223,750 tons, with allowance for "growth" expansion in super alloys, and 243,750 tons with an "outside" allowance for conversion to gas-turbine automobiles.

To repeat, the minimum projection for 1965 is 148,000 tons, if there is no war and no depression. The maximum, excluding growth uses and new uses, is 187,750 tons.

FOOTNOTES

[1] The stockpiling government in this case, through reducing producing operations, could also affect the supply side of the nickel supply-demand equation.

[2] The figure 583-1/3 may be substituted in formula B by the expression 7/12ths × 1,000.

[3] The INCO percentages partly reflect sales to Europe whose product mix could have been dislocated by war preparations in the mid- and late-Thirties.

[4] Weighted for the differing ferro-alloy metal content of single, double, and triple alloys.

[5] Today, averaging the pre-Korea and 1956 relationships would give only a slightly more conservative result, and would appear even more justifiable.

* * *

Sudbury, Canada, is the world's chief source of nickel. New Caledonia has high-grade nickel deposits.—*W. S. and E. S. Woytinsky.*

DREWRYS

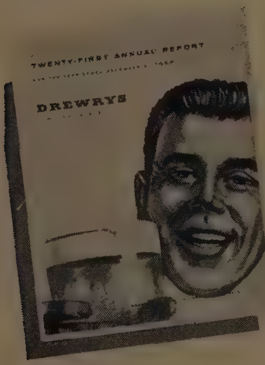
LIMITED U.S.A. INC.

Sold More Beer in 1956
than in any previous year!

COMPARATIVE HIGHLIGHTS

	1956	1955
Barrels Sold	1,431,921	1,425,465
Net Sales after Excise Taxes	$26,270,578	$25,800,873
Income before Taxes	2,893,400	3,233,430
Net Income after Taxes	1,443,400	1,583,430
Working Capital	2,957,188	2,767,727
Shareholders' Equity	10,025,905	9,498,480
Earnings per Common Share	2.38	2.63
Dividends per Common Share	1.60	1.60
Book Value per Common Share	16.56	15.78

Drewrys' beer, as the map indicates, is sold primarily in Indiana, northern Illinois, northwestern Ohio, Michigan, southern Wisconsin and Iowa. This area is highly industrialized and densely populated, with a more rapid rate of growth than many other sections of the country. With so many customers and potential customers close to the doorsteps of our South Bend and Chicago Plants, Drewrys has never felt the need to "go national" to build up sales. Instead, we have attained status as one of the largest and strongest regional breweries in the United States.



* * *

Our 1956 Annual Report and other data about our operations are available on request to the company or our financial public relations counsel,
Gartley & Associates, Inc.
68 William Street,
New York 5, N. Y.

DREWRYS LIMITED U.S.A. INC.

1408 Elwood Avenue, South Bend 24, Ind.

* * *

Beneficial
Finance
SYSTEM

Beneficial Reports for 1956

The 1,000th-Office Year

With the opening of an office in Garden Grove, California early in 1956, the Beneficial Finance System became the first 1,000-office organization in the consumer finance field.

In the Beneficial Finance System's 42-year history, 1956 was the best year ever . . . in number of families served . . . in area covered . . . in number of offices operated . . . and in net earnings.

Beneficial serves principally families by making loans in the small amounts they require and on repayment terms especially devised for them. In this way, a constructive service is rendered to people living in thousands of communities.

HIGHLIGHTS	**1956**	**1955**
Net Income	$ 18,685,686	$ 16,807,373
Net Income per Common Share	$1.91	$1.71
Cash Dividends paid per Common Share	$1.00	$1.00
Amount of Loans Made	$739,041,925	$632,491,082
Number of Loans Made	1,857,772	1,783,979
Instalment Notes Receivable — **at year-end** *(after deducting Unearned Discount)*	$442,283,634	$384,902,281
Number of Offices—**at year-end**	1,023	978

The information contained herein should be read in conjunction with the financial statements and notes appearing in the 1956 Annual Report to Stockholders. A COPY OF THE REPORT WILL BE FURNISHED UPON REQUEST.

. . . a BENEFICIAL loan is for a beneficial purpose.

Beneficial Finance Co.

Beneficial Building, Wilmington, Del.

MORE THAN 1,000 OFFICES IN THE UNITED STATES, CANADA, HAWAII AND ALASKA

Consumer Credit and Its Effect on the Business Cycle

JOHN C. BLAKE

IT IS WIDELY BELIEVED that our economy, henceforth, will be more stable than it has been in the past. Much faith is placed in the so-called "built-in" stabilizers: unemployment insurance, social security, Federal fiscal policy, price supports, mortgage and loan guarantees, etc. Whether these stabilizers have so far prevented depressions, or whether they are yet to be tested by a severe depression, is still to be proved.

Offsetting somewhat the progress thus achieved in making the economy more stable is one important new cause of instability: The growing use of consumer credit. Professor Sumner H. Slichter in his book, "What's Ahead For American Business," (1951, *Little Brown & Co.*), is justifiably concerned about the rapid expansion and wide fluctuations of consumer credit as a factor in aggravating the boom and intensifying the recession. As the standard of living rises, consumer expenditures become less and less stable since people have available a greater percentage of disposable income, a large portion of which is spent for consumer durable goods.

THE NATURE OF CONSUMER CREDIT

By helping to provide a ready market for consumer durable goods through installment financing, consumer credit has made possible the mass production and hence the pricing of such goods within the reach of most American families. In the process, consumer credit has made a fundamental contribution to increased productivity, lower unit costs and a higher standard of living in America today.

Without negating in any way the real contribution to purchasing power made by consumer credit, this article is concerned merely with its relationship to economic fluctuations. It is generally agreed that when an increase of consumer credit is taking place through the use of bank credit, it is a stimulant to the entire economic system. As long as consumer credit is expanding, consumers can buy more on credit than for cash alone. A boom can grow as long as credit is expanded more and more. However, when credit stops expanding, there will be an absolute decline in demand, and when credit starts contracting, there will be a greater decline in demand. For example, if a man with a $4,000 income, spends $5,000 (i.e. buys $1,000 worth on installment credit), he will have to increase his debt to $2,000 in the second year just to maintain a constant rate of expenditure of $5,000; in the third year, he will have to increase his debt to $3,000 and in the fourth year he will have to increase his debt to $4,000. In other words, just to maintain such an increased rate of expenditure, consumer debts would have to increase enormously.

Taking the above example, and supposing that consumer debts are reduced: if the above consumer, with a yearly expenditure of $5,000 and present debt of $4,000, pays off, in the fifth year, $1,000, then his expenditures go down sharply from $5,000 yearly to $3,000. It is the expansion and contraction of consumers' credit in this manner which makes for economic instability. As long as the amount of consumers' credit outstanding remains constant, or is gradually expanding, at a rate which can be maintained, there is no danger. An expansion of credit at a rate greater than the growth in income cannot be maintained indefinitely. Thus, it is not the use of credit, but the variation in its use that produces variation in the rate of purchasing, as is well illustrated for recent years by Chart I.

Chart I shows that even during the recent prosperity net changes in consumer credit from one year to another have been on the order of $500,000,000. While such a change may seem small in our total economic picture, it may still be a significant item in accentuating the business cycle. It is also evident from Chart I that a bulge in consumer credit, to a large extent, anticipates demand and impairs future purchasing power. At some point, the sale of consumer durable goods is handicapped by the necessity of diverting current income to the liquidation of these old obligations. When this point is reached in a major way, consumer credit has a causative effect on business, as we shall next attempt to explain.

CONSUMER CREDIT IN RELATION TO THE ECONOMIC CYCLE

Traditionally, consumer spending has been regarded as having a relatively passive role in the business cycle. Conventional economic theory has maintained that fluctuations in the capital-goods industries, i.e. capital expenditures by business, generate fluctuations in consumer income and spending, rather than the other way around. However, the action of our economy in the last ten years has given us more evidence of the key importance of consumer spending (backed up by a great expansion of consumer credit) in keeping the boom going, especially when it seemed to be faltering in 1949 and again in 1953. How do these changes in consumer spending have a multiple effect on the entire economy?

Fluctuations in consumer spending are magnified through the "acceleration of derived demand." That is, changes in the production of consumer goods give rise to more violent fluctuations in the production of producers' goods in general, and of fixed capital in particular. In other words, the velocity of output in the capital-making industries depends, not on the velocity of output in the industries which use the capital goods to make goods for consumption, but on its acceleration. Any decrease in the rate of increase of consumption will call for an absolute decline in the capital-goods-producing industries.

The relation of consumer credit to this sequence is that through such credit a slight increase in cash income, which allows its recipient to increase current consumption, may bring about a much larger increase in production demand in general. Also to the extent that an expansion of consumer credit causes producers to anticipate a further in-

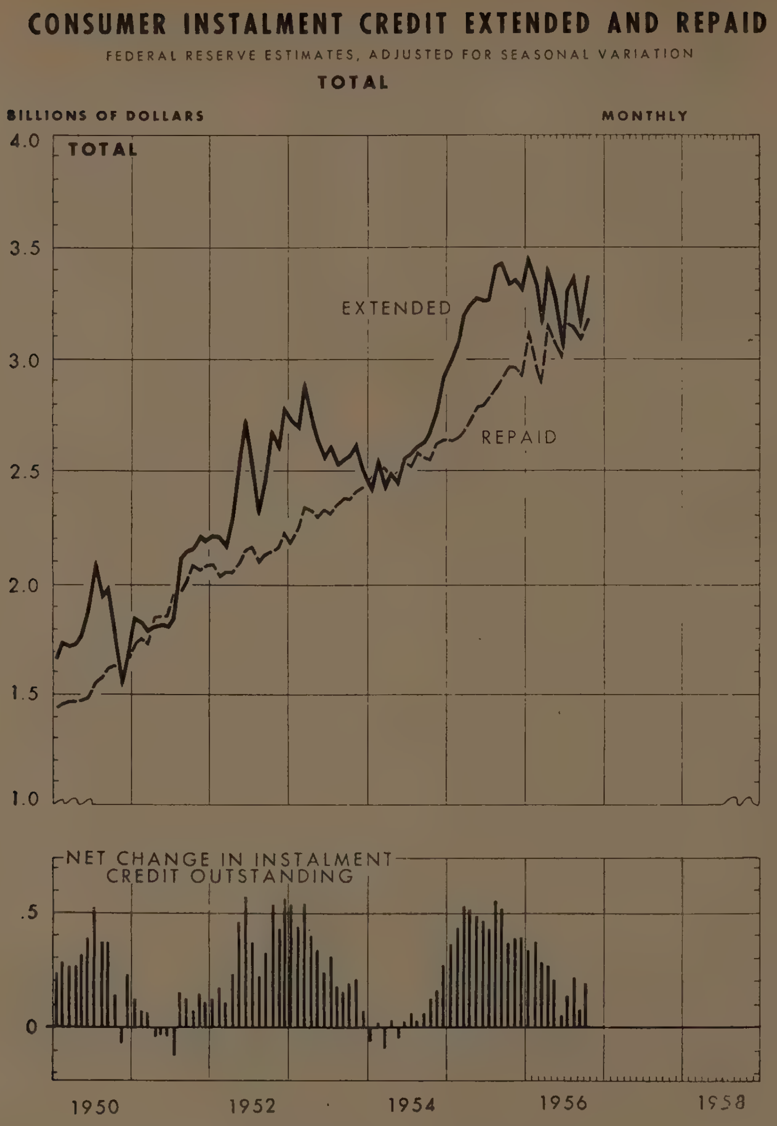


Chart I

BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

Latest Figures Plotted: **OCTOBER**

crease in consumer demand, a multiple derived demand will result. Producers will be building up to a greater "letdown" than would occur without the expansion of installment credit.

The acceleration principle is further accentuated by the fact that most of the consumer credit which is created during a boom is spent for durable goods. These durable goods are made by lengthy, roundabout processes, and at each stage the demand is magnified a little more. In the down swing, the demand for these durable, semi-luxury goods not only ceases to expand, but sharply contracts, in turn causing greater contraction in the capital goods industries.

Thus, it would appear that consumer expenditures in a progressive community becomes less and less stable because people spend more for luxuries in a boom and cut these off sharply in a depression, and that this tendency is further exaggerated by consumer credit. Unfortunately, consumer credit is an inherently unstable factor, because the debts that must be run up, after a while merely to sustain demand (even if output is constant) would become astronomical. So the time comes when business no longer needs additional capital facilities because consumer spending does not keep pace with capital investment.

The effect of consumer credit (upon the business cycle) after a recession has started is less controversial and more obvious. Liquidation of debts is not offset by new loans,

SHORT- AND INTERMEDIATE-TERM CONSUMER CREDIT OUTSTANDING

FEDERAL RESERVE ESTIMATES

END OF MONTH FIGURES

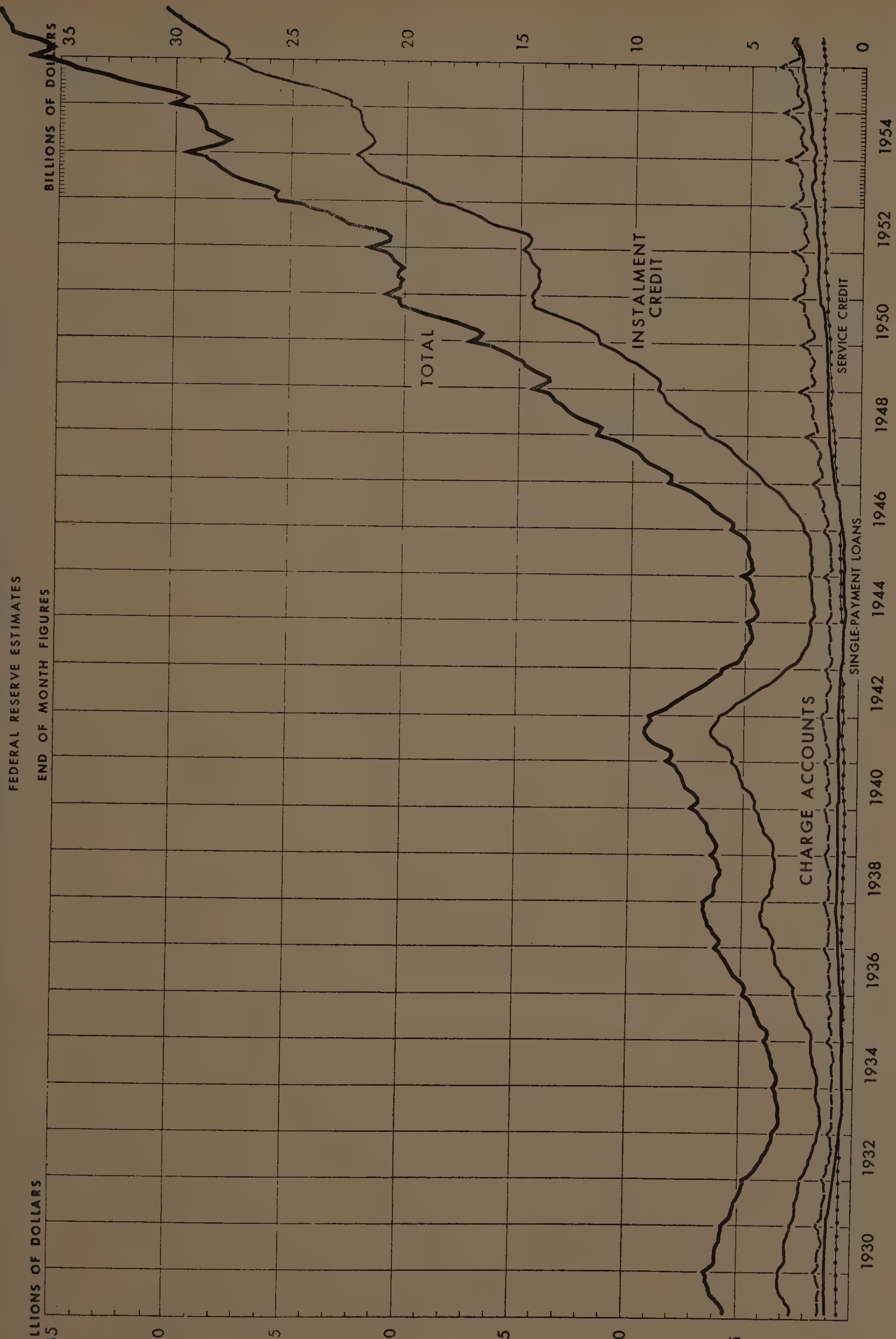


Chart II

BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

RELATION OF CONSUMER INSTALMENT CREDIT TO DISPOSABLE PERSONAL INCOME *

BASED ON DEPARTMENT OF COMMERCE AND FEDERAL RESERVE ESTIMATES

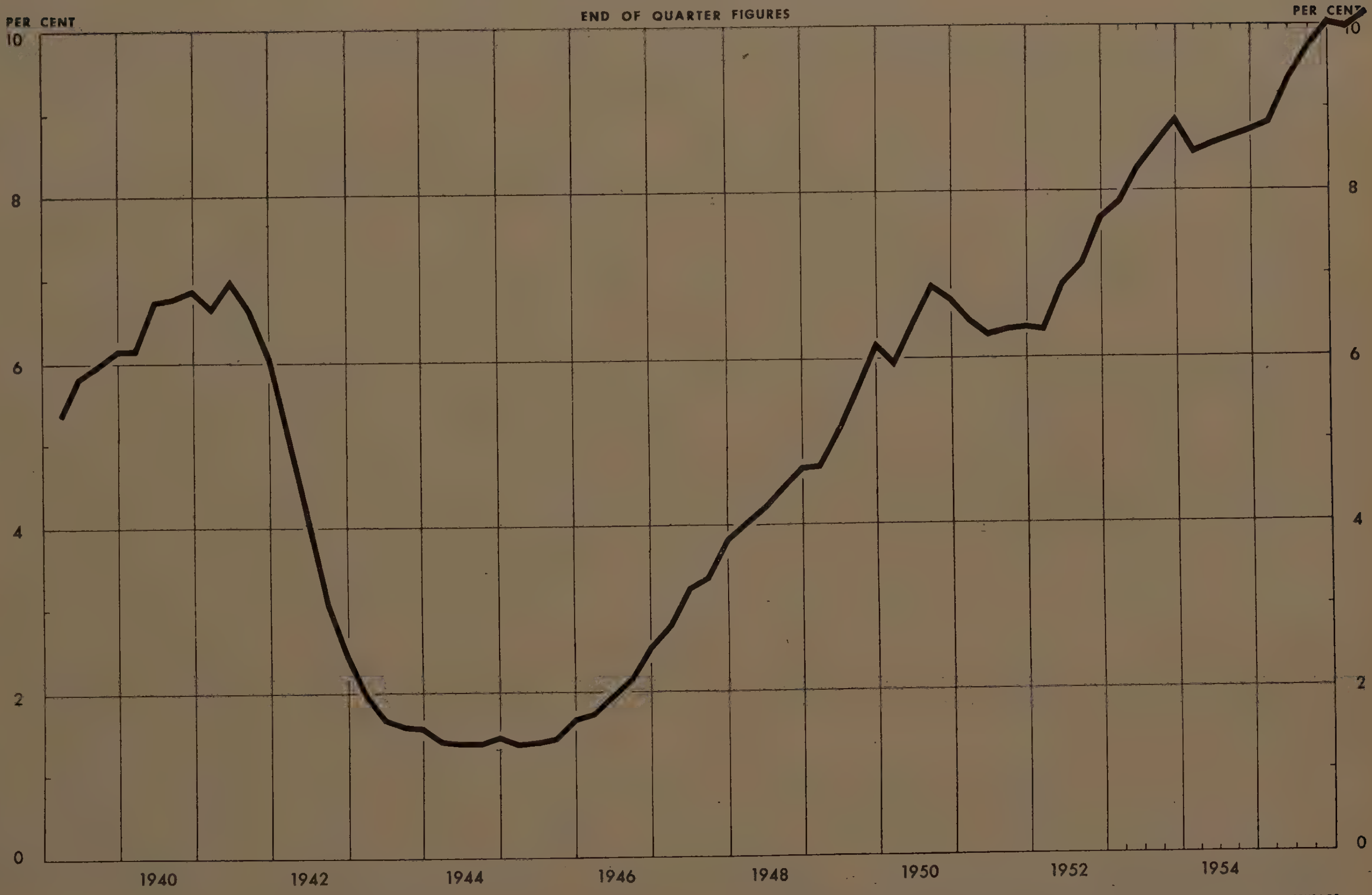


Chart III

* AMOUNT OF CONSUMER INSTALMENT CREDIT OUTSTANDING AT END OF QUARTER AS PERCENTAGE OF DISPOSABLE INCOME FOR THE QUARTER (SEASONALLY ADJUSTED TOTALS AT ANNUAL RATES).

BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM and the burden of debts becomes heavier with falling prices. As more purchasing power is used to pay off consumer credit, less is spent for goods, and this in turn decreases consumer income generally, placing a strain upon the credit structure.

Thus, consumer credit, as presently constituted and unregulated, introduces into the economic structure elements that, in part at least, aggravate, if not generate, the business cycle. From time to time it has been advocated that the Federal Reserve Board should be given permanent authority to fix the terms of consumer credit. However, it should be remembered that nothing in a free and democratic economy can prevent fluctuations in consumer spending, and that the most that could be hoped for from such regulation would be that by wise and timely application, if that is possible, such fluctuations as are aggravated by the over-expansion of consumer credit might be reduced.

THE EXPERIENCE OF 1936-1937

It is interesting to note the striking similarity of the 1956 automobile recession with that of 1937.

During the recovery years of 1934, 1935 and 1936, the increase in the total volume of sales was accompanied by an increase in the proportion of sales made on installment. Installment sales for all reporting department stores increased 25% in 1936 over 1935, (*Survey of Current Business, U. S. Dept of Commerce*), contrasted with an increase of 15% for open-credit sales and only 11% for cash sales. Thus, it can be seen that the gains in installment sales were more than twice that for cash sales over the two-year period. These figures show the phenomenal acceleration experienced in the sales of consumers' durable goods purchased on the installment plan during the years 1935-1936.

The significance of this growth in installment sales will be realized when one takes into account the disproportionately large volume of borrowed funds, or working capital, which is tied up by installment sales. For example, the 10% of sales (1937), which were on the installment plan in the department stores, produced more than one-third of their outstanding credit. The remaining two-thirds is the result of open-credit sales.

Now, we come to the critical year of 1937. What relation, if any, did installment credit have to the reversal in business activity? By 1936 the implications of the expansion of installment selling, which exceeded the rate of growth of either total retail sales or open-credit, were causing general concern. With terms already at liberal extremes, the National Retail Credit Association met in the summer of 1937 and adopted resolutions favoring the application of more sound business principles to installment selling. Sales finance companies revised their terms downward in September 1937, and the most liberal terms were forced back to more or less standard levels. This action was initiated without any general realization that we were sliding into a recession. Some were so unkind as to say that part of the cause of the slump in automobile sales had been the tightening of money and credit terms, which debate, incidentally, was renewed with much the same vigor in 1956!

Thus, in 1937 and again in 1956 those institutions extending consumer credit—banks, finance companies and retail outlets—found it impossible to continue extending such credit at the same rate and terms as in the prior two years unless the quality of their credit was to deteriorate in a dangerous fashion. For the time being, production of cars had outrun the willingness and ability of consumers to buy. The rapid expansion of consumer credit in 1936 and again in 1955 had brought this condition even sooner than the automotive experts apparently expected.

CONSUMER CREDIT IN 1956

Installment sales for all reporting (department) stores increased 121% in 1955 over 1949, (*Survey of Current Business, U. S. Dept. of Commerce*), contrasted with an increase of 60% for open credit sales, and only 33% for cash sales, a rate of divergence which can hardly be maintained.

Total short and intermediate term consumer credit outstanding is now about $40 billions, and installment credit is over $30 billions, as shown by Chart II. While such a figure is "high" by previous standards, we have not had enough experience yet to judge whether, from a point of view of sustaining the economy, it is, or is not, "too high." The relation of consumer credit to disposable personal income is a more significant ratio for this purpose. Chart III shows that this ratio has risen from a 1941 peak of 7% to over 10% in 1956. Again, we know this figure is "high," but not whether it is "too high."

However, as shown in Chart I, the important factor seems to be not the absolute level of consumer credit, but rather its fluctuations and potential fluctuations. From Chart I it appears that 1957 might be a year of net repayments, and hence that the net effect of consumer credit will act as a deflationary factor in our economy during this period.

CONCLUSIONS

Consumer spending is a prime factor in affecting the tempo of capital expenditures by business. Normal fluctuation in consumer spending have been widened by the growth in disposable income, and accentuated by the leverage of consumer credit. Thus, the expansion of consumer credit enables the purchase of durable goods to be concentrated in the boom and so to accentuate the business cycle until finally the liquidation of installment credit or even the cessation of expansion, or even of the rate of expansion, brings about a recession in consumer purchasing. If we are to "have a depression that will make our hair curl," it will be aggravated, if not caused by an over-expansion of consumer credit.

* * *

Durables have limits of useful life so elastic that consumers are seldom forced to buy when very reluctant to do so.—*W. C. Mitchell.*

Commercial Credit reports

CONSOLIDATED net income of the finance companies, insurance companies and manufacturing companies from current operations, after payment of taxes, exceeded $26,400,000, the largest in COMMERCIAL CREDIT's history. The volume of receivables acquired by the finance companies during 1956 aggregated $3,387,087,994, compared with $3,677,241,749 during 1955.

The outstanding receivables of the finance companies of $1,296,831,241 on December 31, 1956 were larger than for any previous comparable date. Gross written premiums of the insurance companies, prior to reinsurance, during 1956 were $33,106,362, compared with $47,056,317 for the previous year.

Net sales of the manufacturing companies during 1956 were $118,976,584, compared with $117,992,005 during 1955.

Net income per common share was $5.26 on the number of shares outstanding and was larger than for any previous year in the Company's history, and compares with $5.22 per share during 1955.

The book value of the common shares has increased $12.78 during the past five years, and on December 31, 1956 was $40.28. During this five year period the Company paid cash dividends of $61,758,361 on its common shares, and retained $58,796,311 in the business. Capital funds of the Company on December 31, 1956 exceeded $200,000,000 which, with $80,000,000 of subordinated unsecured notes (including $25,000,000 due 9/1/57) and $25,000,000 Junior subordinated notes, provided a base of credit for borrowing purposes of $305,000,000. The Company held reserves of $126,874,798 available for credit to future operations, expenses, credit losses and earnings.

We are grateful for the continued use of our facilities by manufacturers, wholesalers, retailers and customers, and the continued support of our stockholders, institutions and others who have provided our operating funds. We appreciate the intelligent cooperation and enthusiasm of the officers and employes in the handling of the Company's operations, which made 1956 the largest earnings year in the history of the Company. The outlook for 1957 for the Company and its subsidiaries appears satisfactory.

E. C. Wareheim, *Chairman of the Board*
A. E. Duncan, *Founder Chairman*
E. L. Grimes, *President*

Condensed consolidated balance sheet as of December 31, 1956 and 1955

ASSETS

	1956	1955
CASH AND MARKETABLE SECURITIES	$ 180 693 150	$ 190 532 645
RECEIVABLES:		
Motor and other retail	881 551 169	816 989 402
Motor and other wholesale	166 677 835	225 590 720
Direct loan receivables	68 955 708	49 628 455
Commercial and other receivables	181 132 189	156 450 891
	1 298 316 901	1 248 659 468
Less: unearned income	73 538 302	63 488 898
reserve for losses	19 659 794	16 385 073
Total receivables, net	1 205 118 805	1 168 785 497
OTHER CURRENT ASSETS	28 123 901	27 791 421
FIXED AND OTHER ASSETS	27 915 205	18 449 923
DEFERRED CHARGES	9 917 441	7 995 844
	$1 451 768 502	$1 413 555 330

LIABILITIES

	1956	1955
NOTES PAYABLE, SHORT TERM	*$ 698 810 917	$ 790 319 000
ACCOUNTS PAYABLE AND ACCRUALS	48 939 709	49 047 254
U.S. AND CANADIAN INCOME TAXES	26 240 176	30 175 468
RESERVES	76 015 745	77 122 671
LONG-TERM NOTES	319 000 000	171 875 000
SUBORDINATED LONG-TERM NOTES	80 000 000	105 000 000
NET WORTH:		
Common stock	50 336 451	50 155 161
Capital surplus	28 898 274	28 515 984
Earned surplus	123 527 230	111 344 792
Total net worth	202 761 955	190 015 937
	$1 451 768 502	$1 413 555 330

*Includes $25,000,000 Unsecured Subordinated Notes due September 1, 1957.

A few facts as of December 31, 1956 and 1955

	1956	1955
Gross finance receivables acquired	$3 387 087 994	$3 677 241 749
Written insurance premiums, prior to reinsurance	33 106 362	47 056 317
Net sales manufacturing companies	118 976 584	117 992 005
Gross income—finance companies	$ 103 400 554	$ 85 124 940
Earned insurance premiums, etc.	36 943 437	38 663 845
Gross profit—manufacturing companies	16 878 758	17 958 054
Investment and sundry income	4 345 640	3 488 899
Gross income	161 568 389	145 235 738
Total expenses, insurance losses and reserves, etc.	72 898 339	66 116 446
Interest and discount charges	37 133 947	24 922 052

	1956	1955
Net income before U.S. and Canadian taxes	51 536 103	54 197 240
Less U.S. and Canadian taxes on income	25 057 432	28 012 310
Net income of		
Finance companies	16 569 774	15 628 251
Insurance companies	5 777 288	5 877 336
Manufacturing companies	4 131 609	4 679 343
Total credited to earned surplus	$26 478 671	$26 184 930
Common shares outstanding, end of period	5 033 645	5 015 516
Common stock per share		
Net income	$5.26	$5.22
U.S. and Canadian tax on income	4.98	5.58
Dividends	2.80	2.65
Book value	40.28	37.88
Interest and discount charges—times earned	*2.38*	*3.17*

COMMERCIAL CREDIT PLAN

Offering services through subsidiaries in more than 400 offices in the United States and the Dominion of Canada.

COMMERCIAL CREDIT COMPANY *Baltimore 2, Maryland*

Copies of our 45th Annual Report available upon request.

How to Study the Behavior of Bank Stocks

JOHN COLLINS

THE PURPOSE OF THIS DISCUSSION is to scientifically deal with the problem of mixed determinants; and to portray a clear-cut, trustworthy answer as to whether a given stock, at a given time, is priced too high or too low.

The examination begins by taking 10 Wall Street banks. Then 27 more of the country's largest, with a table of random numbers, are added. Thus one starts off with a list of 37 banks, nationwide, most of them drawn by the play of chance as insurance against bias.

Next, for each of these banks we fill in on our worksheet its net operating earnings per share, its net profits per share, and its dividend rate for 1955; and its book value and bid price of its stock at that year-end.

Now it is very important that these data be homogeneous. That is, they must be consistent with criteria pertinent to our purpose. If, as you find them in the banks' reports, in Moody's, Standard & Poor's, or elsewhere, they do not thus conform, they must be recomputed to bring them into conformity.

CRITERIA USED

The principal criteria used here are these: insofar as is possible, we exclude all reserves and where such changes as an increase in the number of shares has been agreed upon by the board of directors within the year, the per share data are adjusted for the change only if the board's proposal has been made public before the year-end.

With our materials thus reduced to homogeneous form, we next take millimeter chart-paper of high-precision, engineering grade and on it relate the net operating earnings per share of each of the 37 banks to its corresponding price; the net profits per share to their corresponding prices; and so on, plotting the determinants (since they are the independent variables) on the abcissa and the prices (since they are the dependents) on the ordinate. The results appear on Chart I.

There, in Panel I, we see plotted the relationship of each bank's operating earnings to its price; in Panel II its net profits to its price; in Panel III its dividend rate to its price, and in Panel IV its book value to its price.

Besides, we see running diagonally through the cluster of plotted points in each panel a regression line. Each of those lines reflects, of course, an equation which describes the pattern of its cluster. Moreover, each line establishes for each stock a "normal" price and enables us to see at a glance whether the actual price of any stock in the group is above or below its normal and by how much.

The patterns of the plotted points, we notice, show order; not chaos. They indicate plainly that the over-the-counter market for bank stocks must basically be rational and not, as cynics sometimes insist, a whimsy where fresh young clerks pluck you a quotation on any bank stock from their fedoras.

Further proof of this underlying order is the level of the correlation coefficients. For the operating earnings and price the coefficient is 0.8980; for net profits and price, 0.8453; dividend rate and price, 0.8930, and for book value and price, 0.8665.

These coefficients are, of course, encouragingly high and indicate in each panel a fairly close relationship between determinant and price. As every statistician knows, if the relationship were perfect all the plotted points would lie on the regression line and the coefficient would be 1.00.

However, the coefficients we have here imply correlations that do fall appreciably short of perfection. Moreover, there are between these coefficients significant differences. That in Panel I is highest; in Panel III second highest; in Panel IV third, and that in Panel II the lowest. That is, if one were compelled to appraise the actual price of a bank stock from a knowledge of one of its principal determinants only, the most reliable single determinant in the year 1955 would be the net operating earnings and the least reliable the net profits per share.

Confirming this conclusion are the "Syx" values shown. These are measures of the "scatter" from the regression line. An Syx of 7.625 indicates the least scatter in Panel I and of 9.277, the most in Panel II.

Now useful as the simple correlations shown on Chart I certainly are, close inspection reveals that the actual prices of some stocks are above normal in some panels and below normal in others.

DETERMINANT-PRICE RELATIONSHIPS OF 1954

Before we move on toward a solution, however, let us look into the determinant-price relationship of the year 1954. That seems necessary because the general business activity and money market factors that largely determine our determinants do vary from period to period and quite likely the importance and reliability of each of our determinants as setters of normal prices of the stocks vary with them.

To be more specific, as general business activity and bond prices fall and rise the banks adjust their accounts for bad loans and recoveries and for bond losses and profits. And the adjustment exerts strong leverage upon the magnitude of the stock price determinants, particularly the net profits.

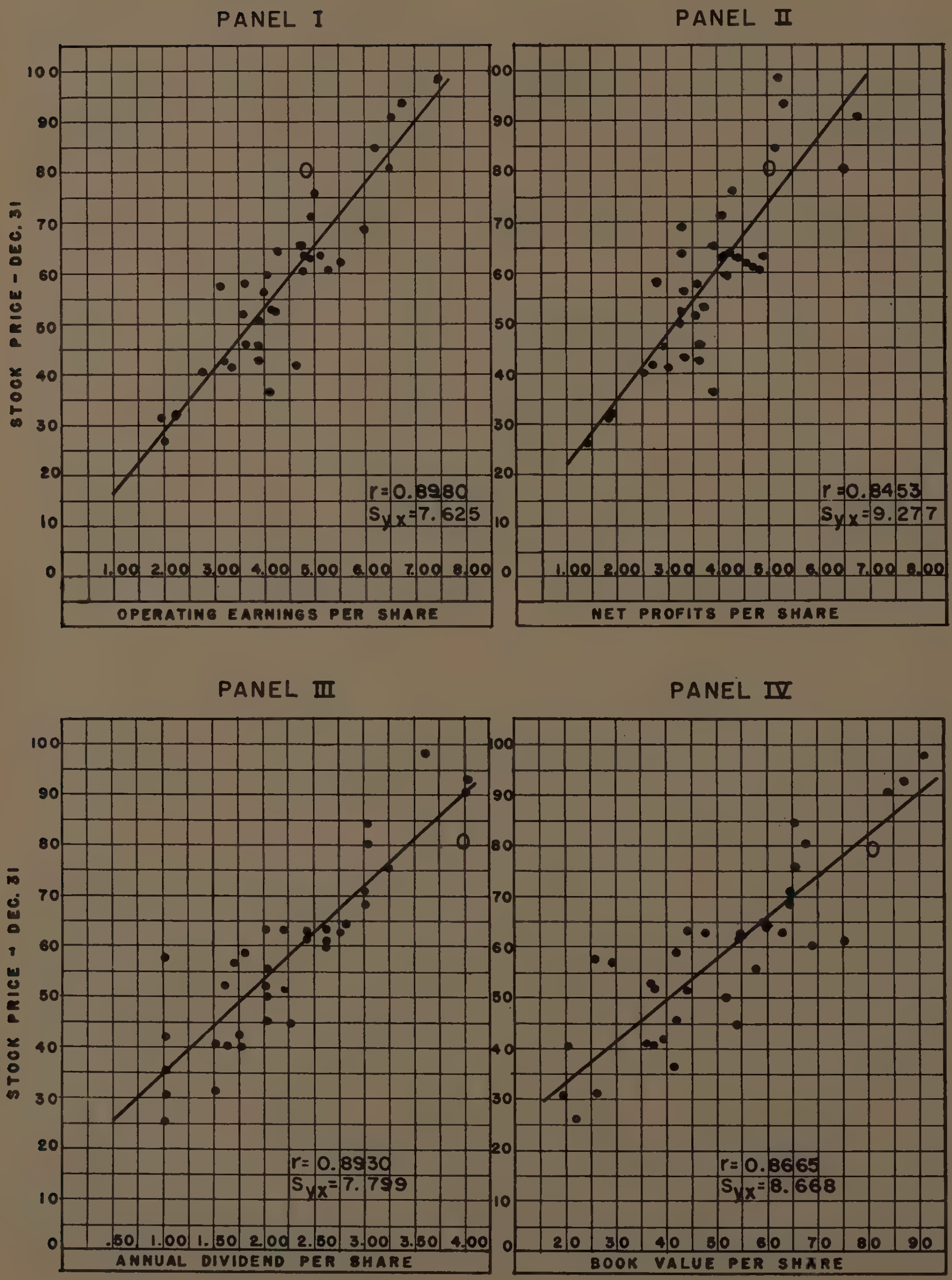
Thus in 1955 banks generally took substantial losses on their bond holdings and largely as a result of this only 17.8 per cent of total earnings of Federal Reserve member banks with deposits exceeding $100 million survived as net profits. In 1954 the reverse was true and the residue remaining as net profits in that year was 22.0 per cent.

DO INDIVIDUAL DETERMINANTS VARY?

With a view, then, to finding out if our individual determinants do vary significantly in importance as stock price setters from period to period we take the same 37 banks,

CHART I

THIRTY-SEVEN LARGE BANKS
THEIR EARNINGS, DIVIDEND RATES, BOOK VALUES
AND
STOCK PRICES
1955



substitute for the 1955 data we have just used those of 1954 and process these new materials mathematically just as we did the old. The correlation coefficients we distill out are shown with those of 1955 in the table below.

	1955	1954
Oper. Earn. & Price	0.8980	0.9136
Net Profits & Price	0.8453	0.7624
Dividend & Price	0.8930	0.9257
Book Value & Price	0.8665	0.9003

With the exception of net profits, the correlation of all our determinants with the stock prices was closer in 1954 than in 1955. For 1954, the dividend rate-price coefficient of 0.9257 is highest of the four, indicating that determinant as the most important and reliable single price-setter in that year. Meanwhile, net profits, with a coefficient as low as 0.7624, was an even less important determinant than in 1955.

How and why investors thus pay more attention to particular determinants in one economic setting and less in another evidently is a phenomenon that should be investigated further. However, we'd better leave that for some other time and after this detour into 1954 get back on the main highway which leads, we hope, to a solution of our mixed determinant problem.

COMBINING DETERMINANTS IN VARIOUS WAYS

We shall combine our determinants in various ways; measure these combinations in their influence upon prices; see if we get higher correlation coefficients, or measures of reliability, than we got for the determinants considered singly, and if we do, we shall hitch our wagon to that combination which yields the highest coefficient of all. For that one will be our optimum, that one should solve our problem.

The coefficients emerging from that procedure are shown in this table:

	Correlation Coefficients	
Determinants Used	*Unadjusted*	*Adjusted*
Oper. Earn. & Div.	0.9427	0.9395
Oper. Earn. & Net Profit	0.9103	0.9044
Oper. Earn. & Book Value	0.9127	0.9076
Oper. Earn., Div. & Book Value	0.9453	0.9398
Oper. Earn., Div., Bk. Val. & Net Profit	0.9495	0.9430

Ah! We see now that when we apply our determinants in combination the correlation coefficients leap to significantly higher levels. We notice that even the lowest multiple correlation coefficient—0.9103—for the operating earnings and net profit package, is higher than the maximum of 0.8980 yielded by any single determinant. And we notice further, that as we add determinants to the package the coefficients steadily rise, reaching a climax of 0.9495 for the amalgam of all four.

This combination of operating earnings, dividend, book value and net profits is, then, our optimum. It is one we shall use to derive the normal price of a bank stock for comparison with its actual price, thus determining whether the latter is too high or too low.

For this optimum combination explains as much as 90 per cent (the square of its coefficient) of the differences between the 37 actual stock prices, as compared with 89 per cent explained by operating earnings, dividend and book value, and only 81 per cent by operating earnings alone. Before putting it through its paces, however, a few words about coefficient adjustment.

It is well known by statisticians that in multiple correlation, as you add constants to the basic equation involved, the coefficients you get approach perfection, or 1.00. Hence, wherever you are dealing with coefficients based upon constants that differ in number the question of their comparability intrudes.

In this case the simple correlations such as operating earnings and price and net profits and price are based upon two-constant equations. Those such as operating earnings, dividend and price stem from three-constant equations; the operating earnings, dividend and book value combination involves four, and our optimum combination of all four determinants, five constants.

So here we have meticulously adjusted the raw coefficients for number of constants used. And for the benefit of those who quite properly want to know the "how" as well as the "what," we add that the adjustment formula used is Mordecai Ezekiel's. As the table shows, the adjustment has made no great difference. It has reduced the coefficients slightly but it has not changed their order.

THE RESULT OF THIS MATHEMATICAL PROCESSING

For a vivid picture now of the net result we have extracted by all this mathematical processing, see Chart II. There we notice the normal stock prices derived from both the least and the most reliable of our methods plotted against the corresponding actual prices. Panel I is based upon the normal prices derived from what we have shown to be the least reliable single determinant — net profits Panel II is based upon the normal prices derived from our optimum determinant combination.

Notice in Panel II, as compared with Panel I, how the scatter from the regression line has shrunk; how, when policed by our operating earnings, dividend, book value and net profit squad, the extreme deviants have become members of a more orderly society.

Now, then, let us really get down to business. We have our optimum combination of determinants. And its equation, with the standard notation used by mathematicians simplified for the benefit of those scared by compound subscripts, is:—

$$X_1 = 2.668 + 6.554X_2 + 12.176X_3 - 0.226X_4 + 2.742X_5$$

where X_1 is normal price; X_2 is operating earnings per share; X_3 is annual dividend per share; X_4 is book value per share, and X_5 is net profits per share.

THE EQUATION BRINGS RESULTS

Equipped with this equation, all we have to do in the case of a particular bank stock is insert each of its determinant values in its proper equation slot, turn the crank, and presto! out tumbles its normal price.

Let us try it with a stock that was not among the 37 we used in deriving our equation. Let us take, say, the Trade Bank & Trust Co., of New York. There the operat-

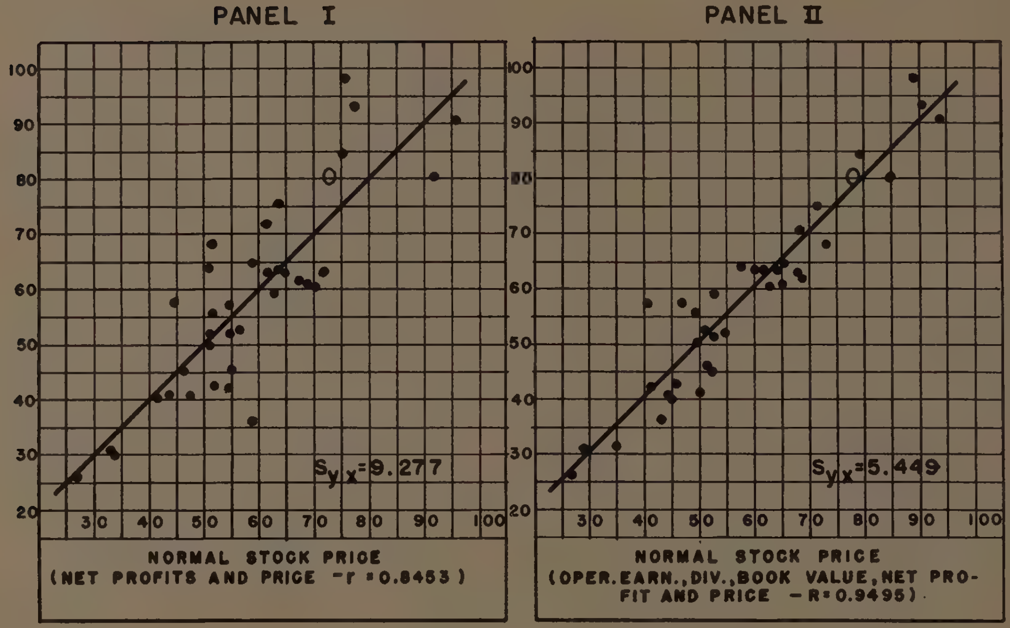


CHART II

THIRTY-SEVEN LARGE BANKS
NORMAL VS. ACTUAL PRICES
DEC. 31, 1955

ing earnings were $1.43 per share, the dividend 80 cents, the book value $19.48 and the net profit $1.27 per share. Inserting these values in the equation, we get a normal price of $20.86. The actual price was $18.00. Therefore, at the 1955 year-end, the stock of that bank was underpriced by about $3.00.

Now let us venture farther into terra incognita. We take our list of 100 largest banks and our table of random numbers and we draw 15 more banks, none of them included in the derivation of our equation. Inserting the determinant values for each of these banks in the equation we get their normal prices. Computing the correlation measure, we get a coefficient of 0.9526, which is higher, even, than any of those obtained heretofore.

When this coefficient is adjusted for number of constants, it recedes to 0.8706. This adjusted value is still high enough to maintain confidence in our equation as a practical working tool. Anyway, we know that the size of a correlation coefficient is, in part, a function of the number of items used and there is little doubt here that if we drew a larger sample than fifteen banks, the adjusted measure would rise.

A SOUND DEFINEMENT

We come now to the end of our excursion. We have outlined a sound, scientific way of finding out, when determinants are mixed and confusing (and they usually are), whether a stock is priced too high or too low.

And there is implicit in this method a prediction that if the market, generally, remains fairly constant, the stocks found to be below normal will tend to rise to normal; and that if the market, generally, rises, those below normal will tend to rise more than the others, and that if the market, generally, declines, the subnormals will tend to decline less than the others. For those above normal, the converse should be true. And these tendencies should persist until there is an appreciable change in the values of the determinants.

Of course the use of this method is not restricted to the relationship between determinants and stock prices as the latter stood at the end of the period studied. The user may and should experiment with "lagged" prices. That is, he may compute the correlation between multiple determinants, say, for 1956 and prices at the end of January, 1957, when the earnings and other results for 1956 are more widely known and perhaps more fully reflected in the stock prices.

Nor is use of this method restricted to determinant-stock price relationships only. Multiple correlation may also be applied to loans and investments, money rates, expenses and other determinants of earnings with a view to ascertaining what those earnings in a period not yet ended are likely to be. The results so obtained will have a much higher probability than those otherwise derived.

Finally, use of multiple correlation methods is not, of course, confined to studies of bank stock phenomena. They may be applied to industrials, rails, utilities—in fact, to the operations and security prices of any form of enterprise just as well.

The 10 Wall Street banks used in the sample from which we derived our optimum equation are: Bankers Trust, Chase Manhattan, Chemical Corn Exchange, First National City, Guaranty Trust, Hanover, Irving Trust, Manufacturers Trust, New York Trust and United States Trust.

The 27 others, drawn at random, are: Manufacturers National, Detroit; American Security, Washington, D. C.; American Trust, San Francisco; First National, Boston; California Bank, Los Angeles; Bank of America, San Francisco; Mercantile Trust, St. Louis; National Bank of Detroit; Wachovia Bank & Trust, Winston-Salem; National Newark & Essex, Newark.

Also, Fifth-Third Union, Cincinnati; Valley National, Phoenix; Republic National, Dallas; Fidelity-Philadelphia; American-Fletcher, Indianapolis; Wells Fargo, San Francisco; Second-State Street, Boston; Continental Illinois, Chicago; Third National, Springfield, Mass.; Old Kent, Grand Rapids.

Also, Central Trust, Cincinnati; City National, Chicago; Rhode Island Hospital Trust, Providence; National City, Cleveland; Fort Worth National; National Bank of Tulsa, and Industrial National, Providence.

The 15 additional banks, drawn at random and not included in the derivation of our optimum equation, are: Philadelphia National; First Pennsylvania, Philadelphia; Detroit Bank; Union Bank of Commerce, Cleveland; Citizens Fidelity, Louisville; First National, Tulsa; Union Planters, Memphis.

Also, Michigan National, Lansing; Provident Trust, Philadelphia; Fidelity-Baltimore; First National, St. Louis; Omaha National; First National, Houston; Commerce Trust, Kansas City, and Bank of California, San Francisco.

BOSTON EDISON COMPANY

Preferred Dividend

A quarterly dividend of $1.06 per share has been declared, payable on the first day of May 1957 to holders of record at the close of business on April 10, 1957 of the Company's Cumulative Preferred Stock, 4.25% Series.

Common Dividend No. 272

A quarterly dividend of 70 cents per share on the Common Stock of the Company has been declared, payable on the first day of May 1957 to stockholders of record at the close of business on April 10, 1957.

Checks will be mailed from Old Colony Trust Company, Boston.

ALBERT C. McMENIMEN
Treasurer

Boston, March 19, 1957

INTERNATIONAL HARVESTER COMPANY

The Directors of International Harvester Company have declared quarterly dividend No. 168 of fifty cents (50¢) per share on the common stock payable April 15, 1957, to stockholders of record at the close of business on March 15, 1957.

GERARD J. EGER, Secretary

ALLEGHENY LUDLUM STEEL CORPORATION

PITTSBURGH, PENNA.

At a meeting of the Board of Directors of Allegheny Ludlum Steel Corporation held today, February 21, 1957, a dividend of fifty cents ($0.50) per share was declared on the Common Stock of the Corporation, payable March 30, 1957, to Common Stockholders of record at the close of business on March 15, 1957.

S. A. McCASKEY, JR.
Secretary

1956 a year of continuing

GROWTH PROGRESS STABILITY

for AE

HIGHLIGHTS:

- **COMPLETION OF CONSTRUCTION PROGRAM:** Two new manufacturing units were added in 1956—increasing capacity 50% over 1955. This marked the completion of the Company's current expansion program.
- **SALES:** Tile sales rose 20%.
- **EARNINGS:** Net profit amounted to $1.56 per share versus $1.49 a year ago.
- **CASH DIVIDENDS** continued at $.70 per share (including a 10¢ extra payment). 1956 marked the 9th year of uninterrupted payments.
- **STOCK DIVIDEND** of 5% was paid in September—increasing the number of shares outstanding from 645,200 to 677,460.

A copy of the annual report booklet may be obtained by writing the Company at Lansdale.

Manufacturers of ceramic wall and floor tile

AMERICAN ENCAUSTIC TILING COMPANY, INC.

"America's Oldest Name in Tile"

Lansdale • Pennsylvania

The Dayton Power and Light Company
1956 ANNUAL REPORT
MORE GAS...
MORE ELECTRICITY
Ready NOW for tomorrow's wonders!
The Dayton Power and Light Company
General Outdoor Adv. Co
DP&L is building now to power the "wonders" in their grown-up future!

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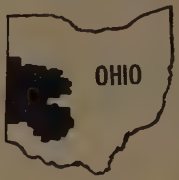
DP&L SERVES OVER A MILLION PEOPLE IN WEST-CENTRAL OHIO



The financial highlights in the adjoining column tell the story of another "good" year. In our annual report we have tried to tell the story of the people that made this progress possible. We will be happy to send you a copy.

FINANCIAL HIGHLIGHTS

	At December 31	
	1956	1955
Property and plant	$224,218,000	$201,738,000
Capitalization	$173,142,000	$170,688,000
Capitalization ratios—		
Common stock equity	38.3%	37.4%
Preferred stock	14.4%	14.6%
First mortgage bonds	47.3%	48.0%
	100.0%	100.0%
Number of shares—common stock	2,629,037	2,619,256
	For the Year	
Operating revenues	$ 73,527,000	$ 68,023,000
Earnings on common stock	$ 10,010,000	$ 8,798,000
PER SHARE OF COMMON STOCK		
Total taxes	$5.92	$5.49
Earnings	$3.81	$3.36
Dividends paid	$2.25	$2.05

THE DAYTON POWER AND LIGHT COMPANY
25 North Main Street • Dayton 1, Ohio

How to Take a Loss and Like It

W. HOWARD T. SNYDER

WHEN I WAS A MUCH YOUNGER MAN, I had the soul-searing experience of losing my first love to a rival who was not only far more devastating than than I but less introspective as well. (This may explain why I am now an investment analyst). I moped in appropriate fashion for quite a long time—in fact, until I found out that on the day of the championship ball game, my successful rival in sports as well as hearts came down with a striking case of chicken pox which he had contracted, to be sure, from you know who. It was thus early in life that I established this personal maxim: There is no loss without collateral compensations.

In the investment world we are all well acquainted with the benefits of offsetting capital losses against gains to ease our client's tax burden. But I find that most of my firm's clients and some of my friends in the investment field are not well acquainted with a provision in the Internal Revenue Code that permits an extra benefit from the loss taken on U.S.A. Series G and K Savings bonds. Any loss sustained from the redemption of these bonds is a *non-capital* loss, hence is deductible in the computation of the *adjusted gross income.* This is quite different from the usual capital loss deduction or offset, and in the case of taxpayers in the middle or higher brackets, the reduction in the tax payable is substantial.

The Internal Revenue ruling resulted from consideration of these facts: The varying redemption values of the G and K bonds were placed on them so that overall yield would be consistent with the length of time the bonds were held. Since early redemption of the bonds, however, at prices under par represents a recapture by the U. S. Treasury of interest already received and reported on his tax return by the bondholder, owners of the Savings bonds are entitled to a reduction in income to be reported at the time of redemption. Thus, the difference between redemption value and par may be deducted from the taxpayer's adjusted gross income.

General market yields have now improved to such an extent that when one considers the 2½% or 2.76% coupon on Savings bonds, he is serving his client well to advise a program of redemption and reinvestment.

An example from a portfolio I recently reviewed will set forth the advantages more clearly. Mr. Jones (all fictitious clients seem to be named Jones) owned $100,000 U.S.A. Series G bonds he had bought in November of 1946 and thus were due in November of 1958. At the time of the review they were redeemable at 97.9. I recommended this program:

	Cost	Appx. Mkt.	Mkt. Value	Income
Redeem:				
$100,000 U.S.A. "G" 2½% due 11-1-58	$100,000	97.9	$97,900	$2,500
Buy:				
$100,000 U.S.A. Treas. 3% due 2-15-95		95½	95,500	3,000

It can be seen that an immediate cash gain of $2,400 was realized by reason of the depressed price for the long Treasuries. A further benefit was the 20% annual increase in income of $500 per year. And a non-capital loss of $2,100 was sustained which was used in computation of the adjusted gross income. Now let us see how that *non-capital* loss affected by client. His top income tax bracket was 56%.

Tax if Switch Was Not Made		**Tax When Switch Was Made**	
Taxable Income	$22,000	Taxable Income	$22,000
Tax	8,380	Less Non Capital Loss	2,100
Take home remainder	13,620		19,900
		Tax	7,200
		Take home remainder	14,700
		Tax Saving	920

IF ONE HOLDS UNTIL ESTATE IS TAXED

Now look at another advantage to Mr. Jones in this particular instance. The long 3% Treasuries recommended for purchase are applicable to Federal Estates Tax at *par* to the extent of the tax. Thus, if my client holds them until his estate is taxed, he will have a further gain of $4,500, the difference between their cost and par (but no *capital gain* tax will be assessed since they will be inventoried in his estate at par, not cost).

An alternative to the purchase of the long Treasuries, of course, would be municipals that can be bought today on a 3.75% to 4% basis. Take home income would be improved much more! And if one wants to step farther down the precarious road of risk, common stocks might be bought. The reinvestment certainly will depend on the special needs and temperament of the client. But the fact remains that whatever the use of the proceeds, one need not be reluctant to recommend redeeming Savings bonds.

SOME DISADVANTAGES

Not all of "loss taking-collateral benefits" is a path of roses, however. Disadvantages are to be noted. The extension of maturity by 36 years from the U.S.A. "G" bonds in 1958 to the Treasuries in 1995 is considerable. Those 36 years will be rife with market fluctuation, we may be sure, as have the last 36 years. However, it is probable in Mr. Jones' case that the Treasury bonds will be used at par for taxes before they mature. And who can say that the long '95s will not have been a good purchase at 95½ somewhere along the line, perhaps not too far hence?

Another drawback is the amount of time required to redeem G and K Savings bonds. They must be presented at least 30 days before the first day of the month in which they are to be redeemed. If one is to allow time to work out his program, present it for consideration, obtain approval and then go through the mechanics of actually presenting the bonds, many more than 30 days are consumed.

And in that time security prices may slide around a good deal. At the moment of this writing, however, it seems that higher interest rates will prevail for some little time—longer than 30 or 60 days. I suggest that one can safely proceed with the redemption planned and concern himself with reinvestment when the funds actually are in hand.

My example of Mr. Jones, though an actual case, may seem unfortunate because of the sizeable block of Savings bonds involved. It was used to more dramatically point up the situation. I presume that the average portfolio is more likely to have holdings of $5,000 or $10,000 or $15,000 of these bonds. Even though this be so, no conscientious investment adviser can ignore any possibility of improving his client's portfolio or of helping his client lighten the load of onerous taxes. I have seen a good number of successful programs based on these principles but involving comparatively small amounts of assets.

SCRUTINIZING FOR COLLATERAL COMPENSATION

Human nature being what it is, we are loath to take a loss until we are forced into it. Too often we believe that by ignoring a loss we will some day glance at the asset to find it has not only recovered its original value but has shown some appreciation. This has, in fact, been the case many times during the last lush years. But even were the lush years to persist, there can be no reason to neglect scrutinizing every asset, with profit or with loss, for possible improvement of our clients' portfolio and fundamental position.

All of these sage remarks bring me to another personal maxim: In spite of long years of experience, when I next sustain a loss I'll cry just as hard as I did when I realized my first one. But I shall have my eyes open for the collateral compensations.

A regular quarterly dividend

of 30c per share has been declared by Daystrom, Inc. Checks will be mailed May 15th to shareholders of record April 26th.

DAYSTROM, Inc.
Murray Hill, N. J.
Electrical and electronic products
Modern furniture

The Role of
REGIONAL SECURITY EXCHANGES

By James E. Walter

Shows how regional exchanges fit into the complex of the securities market and evaluates their effectiveness. Presents new statistical material—including price indexes, price-earnings ratios, and annual share turnover ratios—based largely on records of the San Francisco Stock Exchange. Also suggests how to augment the effectiveness and listing potential of regional exchanges.

180 pages, $3.00

University of California Press
Address: Berkeley 4, Calif.

The Baltimore and Ohio Railroad Company

130th Annual Report—Year 1956

	Year 1956	Comparison With 1955 (+) Increase (−) Decrease
Income:		
From transportation of freight, passengers, mail, express, etc.	$465,484,696	+$33,423,279
From other sources — interest, dividends, rents, etc.	7,746,340	— 440,574
Total Income	$473,231,036	+$32,982,705
Expenditures:		
Payrolls, supplies, services, taxes	$406,718,960	+$28,894,811
Interest, rents and services	36,473,815	— 2,031,585
Total Expenditures	$443,192,775	+$26,863,226
Net Income:		
For improvements, sinking funds and other purposes	$ 30,038,261	+$ 6,119,479

The full annual dividend of $4.00 per share on the preferred stock was paid quarterly during 1956, and improved earnings justified an increase in the dividend on the common stock to $2.50 per share, which was paid December 27, 1956.

Interest on long-term debt decreased $2,029,097, compared with 1955, reflecting the saving realized in 1956 from the 1955 refinancing. Since August 15, 1938, there has been a net reduction in long-term debt of $193,054,394. In the same period annual interest charges have been reduced $11,917,942.

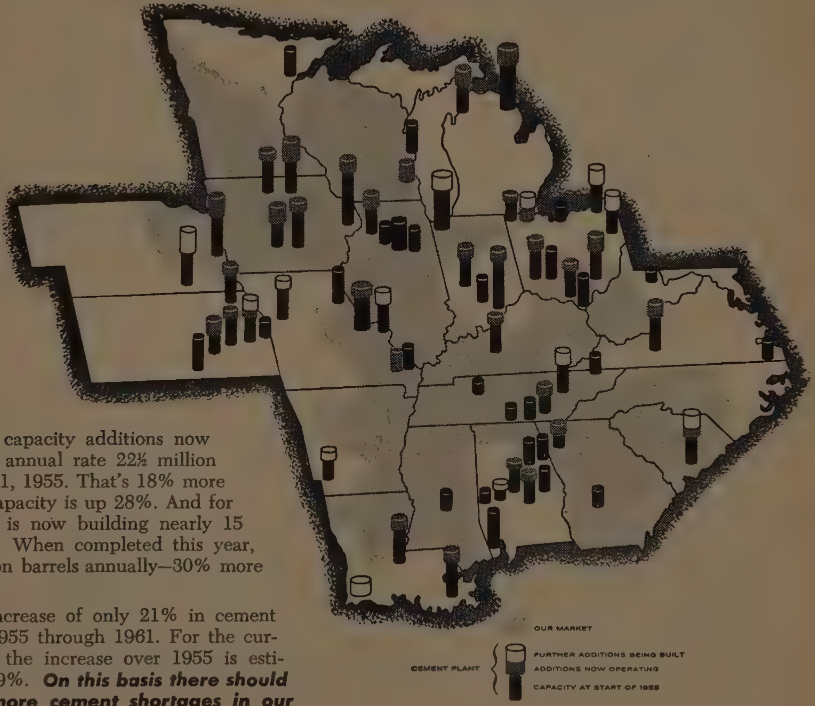
In 1956 the company added more than 2,000 new freight train cars to its fleet, and accelerated its car repair program. At the end of the year only 3.7% of cars owned were unserviceable, compared with 6.6% at the beginning of the year. Additional freight cars on order and continuation of the repair program should provide an adequate car supply in 1957. At the end of 1956 Diesel power was handling 86% of the company's freight traffic, 99% of its passenger traffic, and 83% of its yard switching.

H. E. Simpson, *President*

1956

Year of great expansion for MARQUETTE and the cement industry

New 1¼ million barrel Marquette plants are now operating at Milwaukee, Wis. (top), and Cape Girardeau, Mo. In addition, Marquette's Des Moines, Ia. plant capacity was increased 400 thousand barrels in 1956.



In our 18-state market, capacity additions now operating are producing at an annual rate 22½ million barrels higher than on January 1, 1955. That's 18% more cement per year. Marquette's capacity is up 28%. And for this same market the industry is now building nearly 15 million barrels ***more*** capacity. When completed this year, total capacity will be 160 million barrels annually—30% more than at the start of 1955.

In contrast, we project an increase of only 21% in cement use from 1955 through 1961. For the current year, the increase over 1955 is estimated at 9%. ***On this basis there should be no more cement shortages in our market as a whole.***

These and other important facts are expanded upon in our 1956 annual report, which we will be pleased to send on request.

FINANCIAL HIGHLIGHTS

	1956	1955
Net Sales	$43,558,363	$39,264,050
Net Income	7,376,467	6,114,674
Earned per common share	2.74	2.26
Common shares	2,625,000	2,625,000
Common Dividends		
Total for the year	1.30	1.08
Annual rate at year end	1.40	1.20

MARQUETTE Cement
MANUFACTURING COMPANY

Operating ten cement producing plants in Illinois, Iowa, Ohio, Missouri, Tennessee, Mississippi, Georgia and Wisconsin.

Annual capacity now 16,500,000 barrels

EXECUTIVE OFFICES • 20 NORTH WACKER DRIVE • CHICAGO 6, ILLINOIS

Book

American Statistical Association Proceedings of the Business & Economic Statistics Section

American Statistical Association,
Washington, D. C., 294 pp, $1.50

Henry Steinhouse and his committee did a good job of editing these papers. And both Roy Reierson and Geoffrey Moore built the programs around such fine material that it is full of meaning and merit months after the forums were presented.

For this reason it is a matter of pride for the National Federation of Financial Analysts Societies to have participated in the meetings. At the 1956 session Robert Wilkes was an able chairman, Jeremy Jenks advocated a "constructive investment attitude," Gilbert Palmer thought "bank stocks may be a buy," Dutton Morehouse believed "the stock market to be in a high area," and Edward Spencer said "the most important factor in the utility business is the regualtory atmosphere in which the company operates."

Ralph Young's program on "Financial Implications of Long-Term Growth" contained material explaining the increased demand for money over the past one hundred and fifty years. Grover Ensley, chairman of the meeting on "Techniques and Uses of Forecasts of General Business Conditions," had in his forum several papers of outstanding factual importance for financial analysts. The "Cost-Price Analysis Problems," covered under the guidance of Geoffrey Moore, were interestingly indicated by Murray Altman and Thor Hultgren, whose tables add to the understanding.

The "Business Outlook," an annual feature of great worth, always led and arranged by Martin Gainsbrough, "pride of the Conference Board," is of value. In this section George Mitchell analyzed the "Liquidity Squeeze," and Dexter Keezer "The Business Outlook for the Next Five Years." He foretells "a very cheerful view both for the near and the intermediate future." This paper is long, logical, and should be read. The same can be said for many of the others, for they are the thinking of the most skilled scholars and for that reason enlightening.

In this department are summarized books, articles, and documents of outstanding economic or financial interest.

Helen Slade is the author of the book reviews. She will cooperate with members of the Society desiring source material for JOURNAL *articles and for research projects and studies.*

Successful Executive Action

Edward C. Schleh
Prentice-Hall, Inc., 252 pp, $10

Business management, says Mr. Schleh, is a "series of decisions—decisions made by many men." So that their lot may be less difficult, and their thoughts more easily tabulated, this book has been written. Here one finds a set of principles most of which are the results of actual experience and observations.

Some of the problems may be solved by an unemotional reaction to questions which should be regarded from an abstract point of view. Methods of appraisal of situations, and inducing participation of the entire staff, as well as measuring the importance of circumstances, are stressed.

Committees should be held in check so that they will never degenerate into discussion groups nor time-wasters. A fine thought to be passed on is that trifles do not deserve over-weighted consideration. Also executives might do well to keep in mind that "it is rare that any one man will be a top-notcher in everything." No one should think of himself as the master mind. This can surely bring about a loss of humility, and for that reason sound thinking. Such men rarely build "virile organizations."

There are self-check tests to be entered on blank pages at the end of chapters, and persons filling these for self-examination will no longer labor under delusions of grandeur.

The Ownership of Tax-Exempt Securities, 1913-1953

George E. Lent
National Bureau of Economic Research, Inc., 140 pp, $1.50

"Through ownership of tax-free securities some taxpayers legally escape their share of Federal taxes." On the other hand, state and local governments find advantages in thus financing their improvements. Moreover, they make excellent investments for governmental agencies, institutions, banks, and individuals. On February 14, 1955, individuals held 44 per cent of the $32 billion total tax-free securities, but this was under the 1930 figure.

Highest income groups — that is, estates over $10 million—own a large percentage of this type of investment. This, however, has in no way diverted capital from corporate shares, and certainly more moderate size estates have increased their corporate stock holdings. It is certain that the kinds of investment held by large estates influence the direction of wealth in the entire economy.

The author compares average yields on common stocks, taxable corporate bonds, and tax-exempts for several income groups, and reaches the conclusion that tax-exempt securities in 1952

Reviews

would have been justified on yields only for married taxpayers with a joint income of fifty thousand dollars or more.

Charts showing the changes in investment in tax-exempts by ownership are illuminating. In fact the charts and tables of the study will stimulate much thought. The attractiveness of these bonds will be clarified both as tax avoidance measures and as satisfactory investments after a consideration of the tables and charts, and of course the text.

THE AGRICULTURAL COMMODITY PROGRAMS

Murray R. Benedict and Oscar C. Stine
The Twentieth Century Fund
510 pp, $5.00

Murray Benedict, long the leading interpreter of agricultural facts and their impact on the economy, has with the assistance of Oscar Stine written a book of far-reaching value. In it not only are programs evaluated and explained, but each commodity is separately treated. This should be a guide for many an analyst whose investment advice must be colored by the agricultural situation. There are chapters covering cotton, tobacco, wheat, sugar, wool, and other crops, each and every one with a definite emphasis on that item as it affects specific undertakings. Since billions of dollars have been given to aid agriculture, these dollars in turn must have meaning for the nation's economy. This is both a timely and fine study.

The market trend toward detailed specification of procedures and price relationships are likely to produce more rigidity than is entirely desirable. This runs through most programs notwithstanding that by necessity they must be individual. Each commodity has its own peculiarities, and the manner in which they are separately treated makes conclusions quite easy.

The railroad rates, as well as the Federal Reserve Banks and Treasury monetary policies, can block direct Congressional action. This and their influences on cost are presented. Action and efforts of the Supreme Court as a restraining power are discussed. No matter what the restraints, an increase in the "amount of delegation of functions formerly considered specifically legislative has come to be generally recognized as inescapable." The farmer long-range policy in the United States is neither settled nor entirely consistent. Moreover, it is altered by supply, demand, and weather, as well as the condition of business. For these reasons commodity programs are here to stay. Several possible methods are examined, weighed, and submitted for the reader's consideration.

Although each program reflects on every other, no broad generalization can be made for any large group. The approach will be the consideration of looming problems and moves whereby stability may be assured. Each program needs to be developed carefully to adjust it to conditions, and to enable savings and investments.

THE AMERICAN ECONOMY

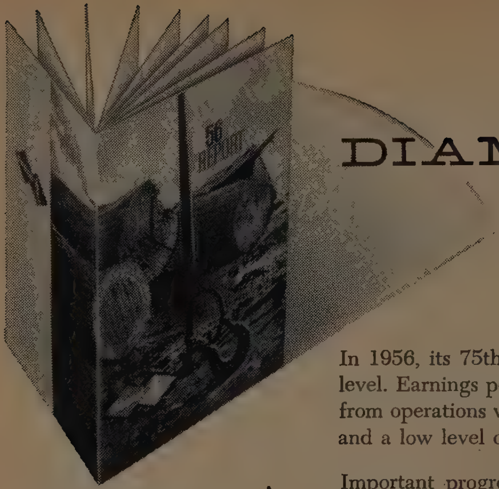
C. Lowell Harriss
Richard D. Irwin, Inc., Homewood, Ill.
816 pp, $7.50

If, as the author says, "thinking goes along with observation," this volume will aid thought, for it brings the means and methods of taking notice to its readers. Analysts know that the basis for forecasting lies in the ability to discern the good or bad of a situation or company, and make deductions. Just what adjustments may become necessary and how they can affect the corporations earnings is explained. This second edition of The American Economy describes relaitonships and incidents which arise. It is an eminently good text book which should benefit students of value. It creates a good background for careful examination of economic data, and a profounder analytical outlook.

Mr. Harriss' selection of material and subjects for discussion throw light on dynamic conditions of today and tomorrow. His chapters covering National Income, Distribution of Income, Taxation, Money, and the Resources of Income will be helpful. With the inquiry of the monetary influences and its sources of supply in the United States are considerations of the need of monetary controls. He also examines various kinds of taxes and their impact on the ability to build strong corporations. During long bull markets one finds simple tabulating of corporate prospects suffice. In periods of recession forecasting requires imagination with its roots in economic facts. This Mr. Harriss makes possible.

* * *

"Though capital goods form less than 18 per cent of gross national product, their output is subject to such violent alterations of good and ill fortune that this minor segment of the economy contributes 44 per cent of the total cyclical fluctuations in output, and nearly half of the cyclical declines."—*Wesley C. Mitchell.*



DIAMOND in 1956

Growing for the FUTURE

In 1956, its 75th year, sales of The Diamond Match Company again rose to a record level. Earnings per common share were $3.04 against $3.02 the previous year. Earnings from operations were off 8% . . . due primarily to price weakness in resale book matches, and a low level of lumber prices in the third and fourth quarters.

Important progress was made during the year. Streamlining of retail yard and store operations was intensified. Modernization of the entire California lumber manufacturing operation was inaugurated; the Northwest lumber operation was reorganized. Installation of modern, high speed wooden match machinery was completed. Molded pulp machinery was redesigned for greater production. The Company intensified merchandising effort in the food packaging field; and a new consumer product was added.

	1956	1955
NET SALES	$133,716,000	$128,839,000
NET INCOME	8,934,000	9,108,000
PER SHARE OF COMMON STOCK		
Net Income after preferred dividends	$3.04	$3.02
Dividends paid	1.80	1.50
PER SHARE OF COMMON STOCK		
Working Capital	$15.26	$20.49
All other assets	16.02	11.67
Total	31.28	32.16
Less: Notes payable and preferred stock	6.56	8.16
Book Value—common stock	$24.72	$24.00

◆ New $20,000,000 integrated forest products plant at Red Bluff, California on schedule. Molded pulp egg cartons production expected to start in June, 1957 . . . entire plant completed by mid-1958.

◆ Diamond will market a new charcoal briquet self-starting molded pulp package called "Neet-Heet".

◆ New Research and Engineering Center at Stamford, Connecticut, becomes fully operative this month.

◆ Diamond's timberland holdings now total 373,000 acres. Ten years ago mill and retail lumber sales were 153 million board feet, last year nearly 369 million board feet.

◆ The Hartmann Fibre Company, Limited, leading British producer of molded pulp egg trays and cartons and food trays, was purchased in May of 1956.

◆ Diamond's 95 retail lumber yards and building supply stores are concentrating on the $15 billion dollar home improvement market.

◆ Since 1947, molded pulp and packaging (with the acquisition of General Package Corporation) has risen from 15 to 31% of total Diamond sales dollars; lumber production and mill sales rose from 8 to 16% of dollar volume.

MANUFACTURING PLANTS

Molded Pulp

Brantford, Ontario
Great Yarmouth, England
Ogdensburg, New York
Palmer, Massachusetts
Plattsburgh, New York
Red Bluff, California

Paperboard Egg Cartons

Morris, Illinois

Matches

Barberton, Ohio
Chico, California
Cloquet, Minnesota
Springfield, Massachusetts

Woodenware

Cloquet, Minnesota
Dixfield, Maine
Oakland, Maine

Lumber

Albeni Falls, Idaho
Biddeford, Maine
Chico, California
Cusick, Washington
Fryeburg, Maine
Lyman Springs, California
Metalline Falls, Washington
Red Bluff, California
Spokane, Washington
Stirling City, California
Superior, Montana

Machine & Foundry Unit

Barberton, Ohio

RETAIL LUMBER YARDS AND STORES

63 in California
29 in New England
2 in Washington
1 in Idaho

RESEARCH AND ENGINEERING

Stamford, Connecticut

Copies of Diamond's 1956 annual report are available by writing to The Secretary,

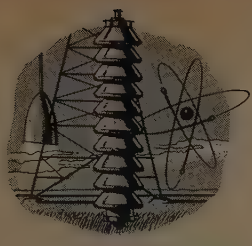
THE DIAMOND MATCH COMPANY

122 East 42nd Street, New York 17, New York

diamond

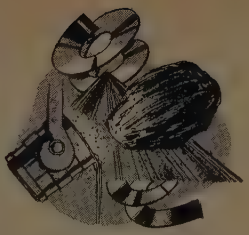
GROWING FOR THE FUTURE

PRODUCERS OF *molded pulp egg cartons, pie plates and cake circles, Deluxe and plain plates, "Foodtainers" and industrial packaging; folding paperboard egg cartons; all types of book and wood matches; woodenware (clothespins, toothpicks, candy and ice cream confection sticks); retail and wholesale lumber and "Neet-Heet" self-starting packages of charcoal briquets.*


ELECTRIC POWER

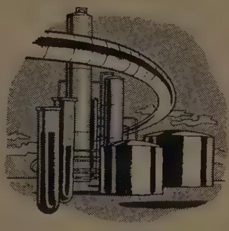
CONSTRUCTION

FOOD AND AGRICULTURE


MINING AND METALS

ALLIS-CHALMERS

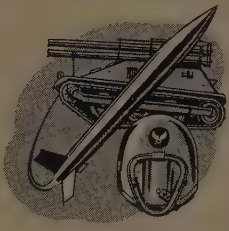
...serving the growth industries


CHEMICALS

PUBLIC WORKS

MANUFACTURING

EXPORT

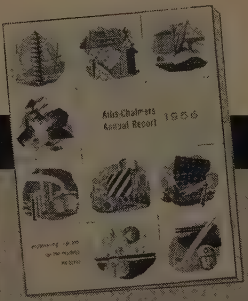

DEFENSE

For copies of the Annual Report write

Allis-Chalmers Manufacturing Co.
Shareholder Relations Dept.
Box 529, Milwaukee 1, Wis.

Allis-Chalmers Highlights	1956	1955
Sales and Other Income	$551,592,589	$538,045,485
All Taxes	33,822,287	34,774,217
Earnings	20,355,045	24,805,326
Earnings per Share of Common Stock*	2.42	3.03
Dividends Paid per Share of Common Stock*	2.00	2.00
Shares Outstanding		
Preferred stock	122,899	186,471
Common stock*	8,141,435	7,888,724
Dividends Paid		
Preferred stock	635,857	941,278
Common stock	16,044,658	15,526,911
Share Owners' Investment in the Business		
Preferred stock	12,289,900	18,647,100
Common stock	159,852,403	153,028,580
Earnings retained	124,129,723	120,455,193
Total share owners' investment	296,272,026	292,130,873
Book Value per Share of Common Stock*	34.88	34.67
Working Capital	267,495,462	273,895,488
Ratio of Current Assets to Current Liabilities	3.13 to 1	5.49 to 1
Number of Share Owners		
Preferred stock	699	2,147
Common stock	47,449	40,222
Employes		
Number of employes	38,803	40,182
Payrolls	194,140,323	176,715,591

**Adjusted for two-for-one stock split in June, 1956.*



divisions

Power Equipment
Construction Machinery
Industrial Equipment
Farm Equipment
General Products
Buda

plants

Beardstown, Illinois
Boston, Massachusetts
Cedar Rapids, Iowa
Gadsden, Alabama
Harvey, Illinois
Independence, Missouri
LaCrosse, Wisconsin
LaPorte, Indiana.
Norwood, Ohio
Oxnard, California
Pittsburgh, Pennsylvania
Springfield, Illinois
Terre Haute, Indiana
West Allis, Wisconsin

Essendine, England
Lachine, Quebec, Canada
St. Thomas,
Ontario, Canada

ALLIS-CHALMERS

Steel Research:

Republic Steel's Investment in the Future

To help meet the insatiable craving of millions of Americans for second cars, portable TV sets, air-conditioned homes, and the last word in work-saving appliances, the steel industry will have to increase its production by 20% during the next ten years.

To expand on the soundest basis, Republic will intensify its scrutiny of raw materials, the coke oven, the blast furnace and the open hearth, as well as alternate processes of production, to see if new and less costly ways of making better steels can be discovered.

> Is an atomic-powered blast furnace practical? What kind of materials will line these super-heated furnaces? Republic's "Research Center" will consolidate developmental and basic research activities to answer these and similar "$64,000 questions," and develop new metals for a dynamic economy.

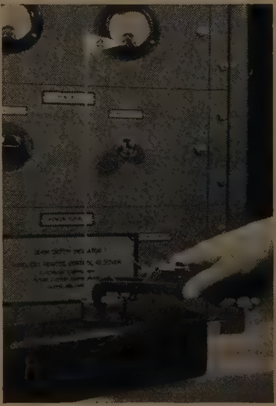
Atomic Energy Can Cut the Cost of Making Steel

It's quite possible that atomic power can be used to heat the air that goes into a blast furnace. Higher operating temperatures could be achieved. Less coke would be needed. "Top gases" would be used to run turbines for generating electricity. Since it takes a ton of coal to produce a ton of steel, and coal production costs have been going up, atomic energy may be an important factor in future steel economics.

In addition to these new ways to make steel, Republic is searching for new alloys to solve the ever-changing problems of our advancing economy.

New "Center" Is Expansion of Present Research

This look at the efficiency of present-day steelmaking, and the search for new types of alloys, are two of the long-range objectives of Republic Steel's new "Research Center" at Independence, Ohio.



WORLD'S SMALLEST BROADCASTING STATION weighs 10 ounces. It sends out radio waves that can measure steel fractures only .012 of an inch deep and broadcasts the results to a receiver 20 feet away. Republic is also working with radioactive isotopes to measure blast-furnace efficiency. Continued process analysis and improvement is part of the over-all program of Republic's Electrical Laboratory in Cleveland.

Only twenty minutes by car from downtown Cleveland, a multi-million-dollar laboratory is being built by Republic on a one-hundred-twelve-acre site of green, gently rolling hills. This modern building will bring together for the first time in the Cleveland area a number of Republic's different integrated research activities. The "Center" will supplement the work being done on basic steels, electronics and building materials in existing laboratories at Canton, Chicago, Youngstown and Massillon. Covering more than 100,000 square feet, the new laboratory will house some 150 scientists and technicians who will concern themselves with both basic and developmental research.

Basic Research

The first section will shelter the fundamentalists—the metallurgists, engineers, physicists, mathematicians and chemists. They will search for new basic scientific data on the physical, chemical and crystallographic properties of various metals. For this work a complete chemical laboratory, with apparatus for determining the gases within metals, is provided, as well as such specialized research tools as X-ray diffraction equipment, spectrographs, electron microscope, and facilities for preparation of specimens, microscopic examination and photography.

Metals that Won't Melt?

The second, or "Development" section, will house the development researchers. The experimental section will contain corrosion-testing equipment and laboratories for both metallic and non-metallic coatings and materials. In one direction their labors will range over such projects as the investigation of more efficient steelmaking materials. Materials like the "cermets". Cermets, ceramic metal alloys, are an entirely new family of materials. Because of their ability to withstand heat as high as 3100 degrees F. (steel softens at 1200 degrees F.) or even higher, cermets might line the atomic blast furnaces of the future. In another direction, the development scientists will experiment extensively on such things as titanium, powdered metals, direct-reduction of ore, chemicals, and plastics, and ore beneficiation.

Now, for the first time, Republic will consolidate the work being done on product development; on improving the efficiency of existing operations; on the development of radically new steelmaking processes; and on fundamental research.

The continuing search for new ways of making things better is basic to Republic's growth. By expanding its research activities, Republic has demonstrated its confidence in the future. New products, and new ways of making steel will produce more jobs, even whole new industries, for a growing, confident economy.

Peter Robertson, Vice President in charge of Research and Planning (on the right) will govern over-all research policy and supervision of Republic's new Central Research Laboratory which is expected to be completed late in 1957. Earle C. Smith, Chief Metallurgist of Republic Steel and one of the country's outstanding metallurgists, will be the new laboratory's Director of Research. Smith, a board member of the National Academy of Sciences and a member of the National Bureau of Standards Metallurgical Advisory Committee, was awarded the Gold Medal of the American Society for Metals in 1946 for outstanding services to the metal industry.

A CASE HISTORY FOR EVERY ORDER OF STEEL. From test tube to X-ray machine, steel is analyzed, stretched, pounded and crushed to guarantee the desired qualities. As many as 170 different chemical determinations and metallurgical tests may be involved in making a ton of finished steel. More than 200 chemical and metallurgical department employees in the Chicago District Research Laboratories build a case history of each order. Such testing and analysis is invaluable in providing data for research.

"TI" FLIES HIGH. Titanium, or "Ti", is in great demand for planes, ships and missiles, because it is about half the weight of stainless steel; roughly, twice as strong as aluminum, and practically immune to corrosion. At Republic's Titanium Research Laboratory in Canton, new titanium alloys of better physical qualities are being developed to provide greater operating efficiencies. Present work envisions entirely new markets... tremendous strides are already being made in testing the use of titanium in the processing industries, notably chemical.

"HURRICANE TRUSCON" TESTS WINDOWS FOR THE FUTURE. A wind chamber has been developed by the Truscon Division at Youngstown, Ohio, to create the static equivalent of a 150-mile-an-hour hurricane. Artificial wind and rain test the latest designs in stainless steel panels and windows like those used in New York's stainless steel clad Socony Mobil Building.

HIGHLIGHTS

from our 1956 annual report...

	1956	1955	1954	1953
Operating Revenues	**$162,150,917**	$154,164,995	$149,472,568	$156,643,985
Operating Expenses	**$120,449,798**	$111,265,102	$109,128,668	$112,836,072
Operating Ratio (Expenses to Revenues)	**74.28%**	72.17%	73.01%	72.03%
Taxes	**$ 16,590,668**	$ 15,787,711	$ 14,851,838	$ 17,793,534
Income Available for Fixed Charges	**$ 24,084,866**	$ 25,321,224	$ 23,989,328	$ 24,851,281
Fixed Charges	**$ 3,939,475**	$ 3,783,103	$ 3,856,758	$ 3,943,448
Times Charges Earned	**6.11**	6.69	6.22	6.30
Net Income after Charges	**$ 20,145,391**	$ 21,538,121	$ 20,132,570	$ 20,907,833
Net Income Per Share of Common Stock (a) (b)	**$ 4.20**	$ 4.53	$ 4.26	$ 4.45
Income Applied to Sinking Funds	**$ 1,703,375**	$ 1,703,375	$ 1,703,750	$ 1,697,300
Balance of Income Transferred to Earned Surplus	**$ 18,442,016**	$ 19,834,746	$ 18,428,820	$ 19,210,533
Shares of Common Stock Outstanding at End of Year (b)	**4,797,610**	4,759,272	4,730,114	4,698,950
Dividends Per Share Paid (b)	**$ 2.50**	$ 2.37½	$ 1.90	$ 1.50
Stockholders at End of Year	**11,286**	7,642	6,306	5,672
Tons of Revenue Freight Hauled (Thousands)	**51,407**	46,922	45,298	43,744
Revenue Ton Miles (Thousands)	**9,826,172**	9,347,679	8,756,928	8,787,838
Average Revenue Per Ton Mile	**$ .0138**	$ .0138	$ .0142	$ .0148
Passengers Carried	**1,091,975**	1,076,162	1,079,244	1,206,164
Passengers Carried One Mile (Thousands)	**510,114**	471,709	450,142	500,413
Revenue Per Passenger Mile	**$ .0268**	$ .0265	$ .0266	$ .0275
Average Number of Employees	**14,965**	15,270	15,309	16,402
Total All Wages	**$ 75,893,984**	$ 71,146,762	$ 70,392,637	$ 72,889,512
Miles of Road Operated at End of Year	**4,062**	4,064	4,064	4,078

(a) Taking accelerated amortization on emergency projects covered by Certificates of Necessity as deductions for Federal Income tax purposes reduced the accruals for Federal Income taxes as follows:

Year	Reductions in Accruals	Per Share of Common Stock of the Earnings Per Share Shown in the above Tabulation
1953	$ 4,280,000	$ 0.91
1954	4,950,000	1.05
1955	5,758.000	1.21
1956	4,362,000	0.91

(b) Based on shares outstanding as of December 31. Years prior to 1956 restated to reflect effect of the split-up of Common Stock on the basis of 2 shares of $20 par value for each share of $40 par value, which became effective April 25, 1956.

The 1956 Report has been distributed to Seaboard's stockholders and securityholders. A copy may be obtained by writing to:
E. L. LASH, Jr., Secretary, Seaboard Air Line Railroad Company, Norfolk 10, Va.

SEABOARD AIR LINE RAILROAD COMPANY

PULLMAN INCORPORATED REPORTS

Increased Revenues and Profits for 1956

Highlights from the 1956 Annual Report

Consolidated revenues for Pullman Incorporated and its subsidiaries for the year ended December 31, 1956 were $368,130,172 compared with $333, 905,337 for 1955. Income before taxes was $23,998,545, compared with $19,834,912 a year ago. Consolidated net income after taxes was $12,651,545 against $9,578,912 in 1955. Net earnings per share were $5.71 in 1956, compared with $4.34 in 1955.

Included in the above 1956 revenue figure is $1,327,041 of non-recurring income resulting from the sale of the 79-year-old Pullman-Standard Building in Chicago.

Dividends of $4.00 per share were declared during 1956, including the extra dividend of $1.00 per share paid to stockholders January 7, 1957.

The year 1956 marks the ninetieth consecutive year in which quarterly cash distributions have been made by Pullman Incorporated and its predecessor companies.

During 1956 each of the three operating subsidiaries — Pullman-Standard Car Manufacturing Company, The M. W. Kellogg Company and Trailmobile Inc. — contributed to consolidated earnings.

PULLMAN-STANDARD CAR MANUFACTURING COMPANY operations in 1956 were highlighted by a substantial increase in freight car deliveries over the previous year with a resulting satisfactory profit level. A total of 16,223 cars were delivered to customer railroads during the year. In addition, progress was made in the company's plant improvement and modernization program.

Pullman-Standard looks forward to 1957 as a good year. As of January 1 it had a backlog of 20,651 freight cars on its order books, some of which are scheduled for delivery in 1958.

Although billings for THE M. W. KELLOGG COMPANY in 1956 showed a moderate decline from the preceding year, the total value of new contracts received during 1956 was the highest it has been for several years — resulting in a backlog of unfilled orders as of January 1, 1957 some 75% above that of the corresponding date in 1956. Indications are that business booked during 1957 will closely approximate the volume booked in 1956 as the result of current activity by the industries which are served by Kellogg.

TRAILMOBILE INC. recorded a year of substantial accomplishments. Sales volume exceeded the record set in 1955, new products gained quick acceptance, and a new manufacturing facility was opened in Longview, Texas. This subsidiary enters 1957 with an improved line of products, a stronger branch selling organization and expanded and improved manufacturing facilities.

Pullman Incorporated

900 Market Street, Wilmington 1, Delaware

UNION CARBIDE

UNION CARBIDE AND CARBON CORPORATION

1956 Annual Report Summary

	1956(1)	1955(2)
Sales	$1,324,506,774	$1,230,554,556
Net Income	146,233,444	145,834,416
Per Share	4.86	4.86
Dividends Paid (3)	91,956,493	87,206,032
Per Share (3)	3.15	3.00
Earned Surplus	580,097,003	528,088,998
Current Assets	$ 715,406,189	$ 691,500,489
Current Liabilities	237,656,800	237,272,875
Total Assets	1,459,748,536	1,404,460,065
Shares Outstanding	30,088,510	29,126,619 (4)
Number of Stockholders (5)	118,391	114,310
Number of Employees	79,000	76,000

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(1) Operations of The Visking Corporation (acquired by Union Carbide on December 31, 1956) are consolidated.

(2) Operations of The Visking Corporation are combined with the exception of intercompany sales, which have been eliminated.

(3) Excludes dividends paid by The Visking Corporation to its stockholders.

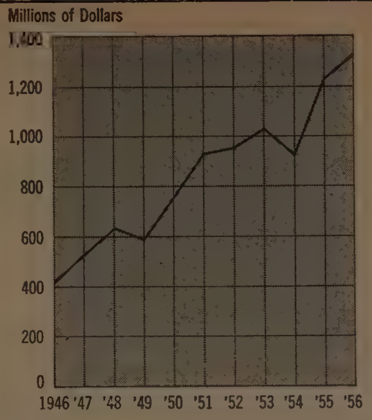
(4) Excludes 864,449 shares issued for net assets of The Visking Corporation on December 31, 1956.

(5) Excludes stockholders of The Visking Corporation.

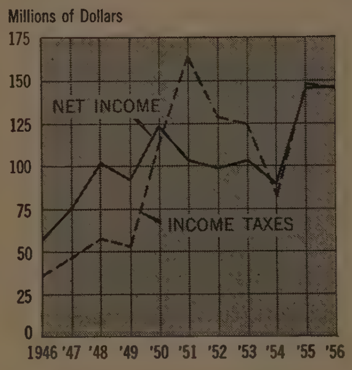
Copies of the complete 1956 Annual Report of Union Carbide and Carbon Corporation will be furnished on request. Also available is an illustrated booklet that describes the products and processes of Union Carbide. If you wish copies of these booklets, please write to the Secretary, Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N. Y.

UCC's Trade-marked Products include

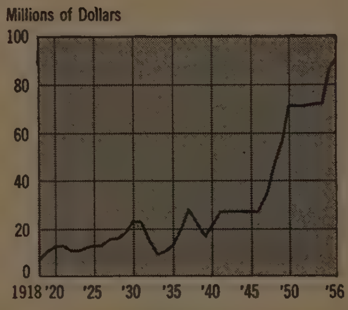
Electromet Alloys and Metals • Crag Agricultural Chemicals • Eveready Flashlights and Batteries • Union Carbide Silicones • Prest-O-Lite Acetylene • Synthetic Organic Chemicals • Prestone Anti-Freeze • Haynes Stellite Alloys • Linde Oxygen Dynel Textile Fibers • Bakelite, Vinylite, and Krene Plastics • National Carbons Union Calcium Carbide • Pyrofax Gas



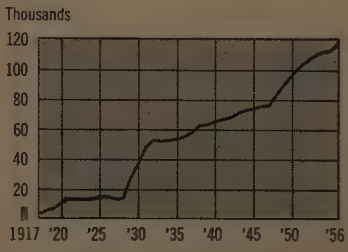
Sales



Net Income and Income Taxes



Dividends Paid



Number of Stockholders

SOUTHERN CALIFORNIA EDISON COMPANY

Earnings per Common share were $3.39 compared with $3.22 per share on a lesser number of shares outstanding at the close of 1955. A milestone in the Company's continued growth was reached late in the year when its total plant account passed the $1,000,000,000 figure. The successful promotion of domestic sales under a vigorous program adopted in 1955 to persuade domestic customers to *live better electrically* was responsible for an increase in their average annual kilowatt-hour use 30% higher than the increase registered in either 1954 or 1955.

We recognize that ours is a continuing responsibility to the dynamic growth of the communities we serve. We shall continue to devote ourselves to the attainment of even greater objectives and in promoting community well-being and that of our customers, employees and investors.

Harold Quinton

PRESIDENT

REVENUE & SALES . . . Gross revenue was $196,446,248 or 10.5% over 1955. Net income increased 14.1% to $33,285,658. Kilowatt-hour sales increased 11.1% in 1956.

FINANCING . . . New money aggregating $93,040,960 was obtained during the year from the sale of 1,200,000 shares of Cumulative Preferred Stock, $40,000,000 of 3⅝% First and Refunding Mortgage Bonds and 500,000 shares of Common Stock.

PLANT EXPANSION . . . Electric plant investment increased $99,122,643 during 1956 to $1,014,315,652. Additional generating capacity amounting to 350,000 kilowatts has been completed. Further capacity totaling 1,150,000 kilowatts is presently under construction or on order.

GENERATION . . . Electric energy transmitted increased 12.2% to over 13.8 billion kilowatt-hours. System peak demand was 2,504,000 kilowatts, an increase of 9.6% over 1955.

CUSTOMERS . . . The 83,718 additional meters connected in 1956 were second only to the 86,899 added in 1955.

CONDENSED CONSOLIDATED BALANCE SHEET

December 31, 1956

ASSETS		LIABILITIES	
ELECTRIC PLANT	$1,014,315,652	STATED CAPITAL AND SURPLUS .	$ 438,544,996
INVESTMENTS AND OTHER ASSETS	9,173,567	LONG TERM DEBT	405,069,600
CURRENT ASSETS	73,807,062	CURRENT LIABILITIES	69,111,067
DEFERRED CHARGES	4,179,555	DEPRECIATION RESERVE	169,039,312
CAPITAL STOCK EXPENSE	3,127,729	OTHER RESERVES AND LIABILITIES	22,838,590
TOTAL ASSETS . . .	$1,104,603,565	TOTAL LIABILITIES . .	$1,104,603,565

SOUTHERN CALIFORNIA EDISON COMPANY

EDISON BUILDING • 601 WEST FIFTH STREET • LOS ANGELES 53, CALIFORNIA

WHITE MOTOR reports record sales and profits for second straight year

	1956	1955
New vehicles sold	17,434	16,880
Net sales	$207,411,732	$179,944,264
Net income	$7,187,875	$6,061,180
Cash dividends paid on preferred stock	$302,731	$346,482
Cash dividends paid on common stock	$2,776,355	$2,270,663
Number of shares of preferred stock outstanding (Dec. 31)	57,489	57,689
Number of shares of common stock outstanding (Dec. 31)	976,659	969,042
Net income per share of common stock	$7.05	$5.90
Cash dividends paid per share of common stock	$2.85	$2.60*

*The Company also paid a 15% stock dividend.

For the first time in the history of The White Moto Company, sales crossed the $200,000,000-marl reaching a total of $207,411,732. This is an i crease of nearly $27,500,000 or 15.3% over the pr vious year . . . up more than 100% over 1950 sale

Net profit of $7,187,875, in 1956, was a gain more than 18% over the $6,061,180 for 1955. In come per share of common stock rose from $5.9 in 1955 to $7.05 in 1956.

All of the Company's divisions contributed to th increase in the sales and earnings for the year, a have a substantial backlog of orders, and all cou on sharing in the expected growth of the transpo tation and construction industries during th period ahead.

Send for your copy of the Whi Annual Report. Address your r quest to the Treasurer, The Whi Motor Company, Cleveland 1, Ohi

THE WHITE MOTOR COMPAN

Cleveland 1, Ohio

Autocar Division—Exton, Pa.
White Diesel Engine Division—Springfield 99, Ohio
The White Motor Company of Canada Limited—Toronto 14, O

For More Than 55 Years The Greatest Name In Trucks

White

Autocar

Early American Oil Man

The American Indian is credited with many firsts, to which should be added the discovery of oil in America.

True, it was Colonel Edwin Drake, who, in 1859, brought in the first oil well. But long before, the American Indian had learned to skim oil off certain streams that flowed through Pennsylvania.

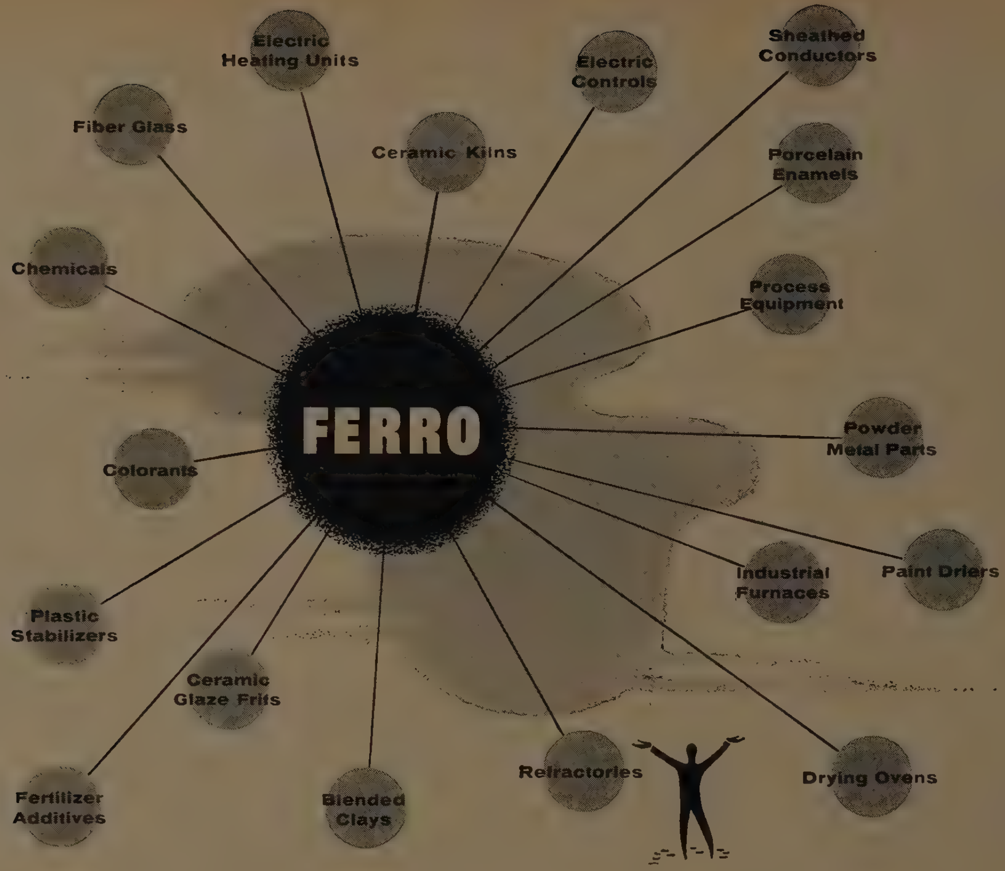
To the Indians, oil was medicine . . . and although their precise medicinal use may not always have been appropriate, their idea was sound . . . for today oil is actually an ingredient in many drugs.

But far overshadowing its use for drugs and by-products is the use of petroleum to power a growing America . . . petroleum in the form of natural gas . . . petroleum in the form of advanced motor oils, greases, and gasolenes.

Here, above all else, Cities Service is proud to take its place as a leader . . . the only oil company that now offers totally new grades of gasolene for every type of car.

Literally fuels of the future, these new gasolenes are the crowning achievement of the finest men, methods, and multimillion dollar refining equipment. More importantly, they are part of a continuing series of petroleum "firsts" now offered and yet to come from Cities Service . . . for as America grows, so grows Cities Service, for nearly half a century, a leader in oil progress.

CITIES SERVICE



*CONDENSED CONSOLIDATED BALANCE SHEET AS OF DECEMBER 31, 1956

ASSETS	
Cash & Government Securities	$ 2,372,177
Notes & Accounts Receivable	8,663,754
Inventories	12,642,208
Prepaid Expense	670,563
Current Assets	$24,348,702
Other Assets, Including Investments, Property, Etc.	15,801,563
	$40,150,265

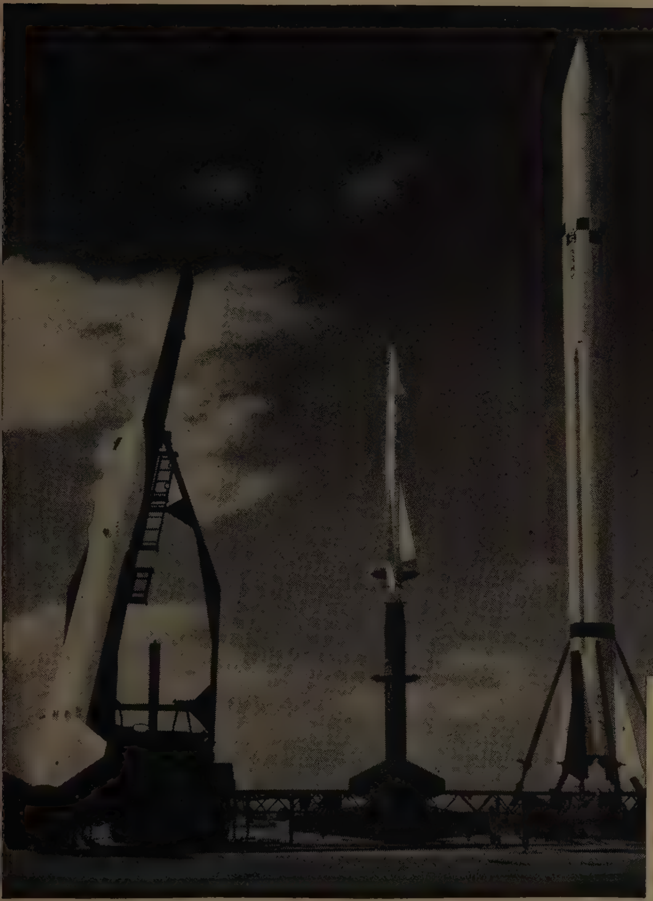
LIABILITIES	
Current Liabilities	$10,999,966
Long-Term Liabilities Due After 1957	7,412,013
Other Liabilities & Reserves	211,447
Shareholders' Equity	21,526,839
	$40,150,265

**Annual Report, Just Released, Is Available on Request*

FERRO

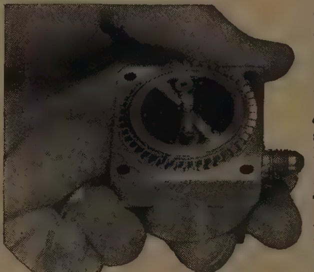
FERRO CORPORATION
4150 EAST 56TH ST. • CLEVELAND 5, OHIO

Thompson power units keep guided missiles "on target"!



Army's Production Missiles include the "Honest John" *(left)*, the "Nike" *(center)* and the "Corporal" *(right)*. It is estimated that Congressional appropriations for missile construction in 1956 will be close to a billion dollars.

This is one of the Thompson "Muscles" built to help keep guided missiles "on target" with uncanny accuracy. The self-contained auxiliary power plant shown here is only 12 inches high yet it produces approximately 10 horsepower in electrical and hydraulic energy. This power is used for operating the guidance controls, radar mechanism and intricate computing gear of the missile.



100,000 Revolutions per Minute! Yes, the tiny turbine wheel which you see here on the watch-size alternator, spins at the rate of 100,000 RPM . . . almost 1700 per second! It develops electrical current that would be sufficient to light a 100-watt bulb, and is part of a very small Thompson auxiliary power unit for guided missiles. This particular power unit is designed for a useful life of less than a minute!

TODAY'S HEADLINES tell of rocket-propelled guided missiles that soon may be able to travel 400 miles high at 10,000 to 15,000 m.p.h. These fantastic weapons can well be the key to permanent peace among nations.

Now being built for guided missiles are hard-working Thompson Auxiliary Power Units. These busy, complex units supply "muscle" power for steering controls, radar mechanisms and intricate computing gear that guide the missile unerringly to its target, near or far.

Some of these Thompson "A.P.U.'s" can be slipped into your pocket; some are as big as office desks. They range from 100 watts to 60 horsepower in output, and from a fraction of a minute to several hours in predetermined operating life. Each Thompson unit is highly accurate, even at extremely high altitudes and supersonic speeds. It withstands extreme temperatures, rapid acceleration and friction.

Thompson "custom-engineers" every unit. Each is a highly intricate system involving many specialized electrical and mechanical devices, fuel systems and generators. Yet, all are blended into one compact, efficient package to meet the requirements of our defense.

Behind Thompson are 55 years of automotive, aircraft, mechanical and electronic experience. Thompson has the engineering skills and the laboratory, testing and manufacturing facilities to solve complex scientific problems. Many different industries have learned they can *count on Thompson* to come up with parts and components that do the job right. Thompson Products, Inc., General Offices, Cleveland 17, Ohio.

You can count on

Thompson Products

MANUFACTURERS OF AUTOMOTIVE, AIRCRAFT,
INDUSTRIAL AND ELECTRONIC PRODUCTS.
FACTORIES IN NINETEEN CITIES.

Southern California Edison Company

DIVIDENDS

The Board of Directors has authorized the payment of the following quarterly dividends:

CUMULATIVE PREFERRED STOCK,
4.08% SERIES
Dividend No. 29
25½ cents per share;

CUMULATIVE PREFERRED STOCK,
4.24% SERIES
Dividend No. 6
26½ cents per share;

CUMULATIVE PREFERRED STOCK,
4.88% SERIES
Dividend No. 38
30½ cents per share.

The above dividends are payable May 31, 1957, to stockholders of record May 5. *Checks will be mailed from the Company's office in Los Angeles, May 31.*

P. C. HALE, *Treasurer*

April 19, 1957

DIVIDEND NOTICE

The Board of Directors has declared a quarterly dividend of 35 cents per share, payable March 11 to stockholders of record February 21.

After taking into account the 2-for-1 stock split in January, 1957, this is an increase of 10 cents over the quarterly payment in 1956.

January billings of the McGraw-Edison Company were up 31 per cent over a year ago, taking into account January sales for both years of Thomas A. Edison, Inc., and Speed Queen, divisions acquired within the past year.

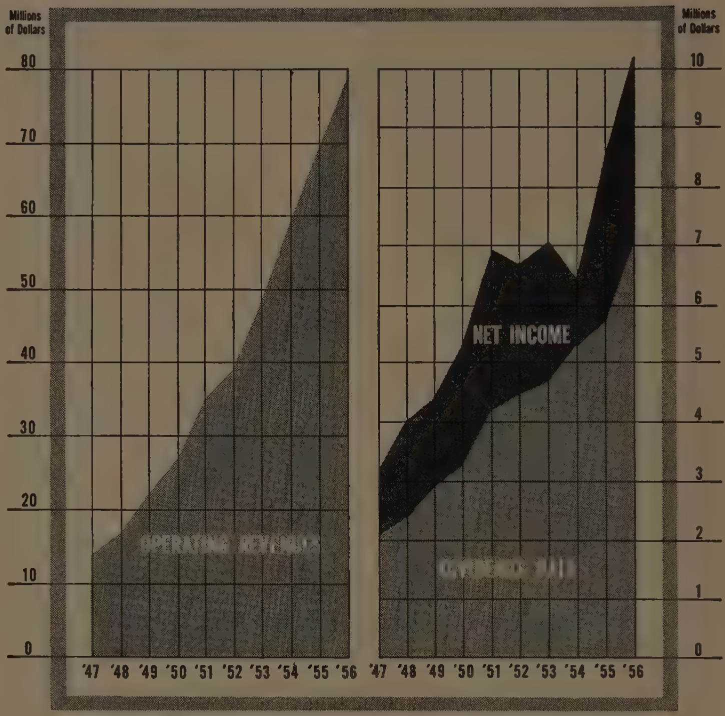
The dollar value of Edison orders received in January this year was 42 per cent higher than January last year.

Elgin, Illinois
February 12,
1957

Max McGraw, President
McGraw-Edison Company
(Formerly McGraw Electric Company)

Southern Natural Gas Company

Our Record for the past ten years



Our Record for 1956

In its Annual Report, Southern Natural Gas advises stockholders that it

- ★ Acquired a majority interest in The Offshore Company, drillers of oil and gas wells specializing in submerged lands off the Gulf Coast
- ★ Made contracts for purchase of gas from fifteen additional gas fields
- ★ Drilled 19 development wells productive of oil or gas
- ★ Increased gas deliveries about 12% over 1956
- ★ Increased the regular dividend payments to an annual rate of $2.00 per share

The Results:

Gross revenues and net income again higher than in any previous calendar year.

	1956	1955
Total Volume of Gas Sold—Mcf	308,307,297	274,851,165
Average Daily Sale—Mcf	842,370	753,017
Gross Revenues	$80,798,930	$69,919,556
Net Income	$10,285,355	$ 8,534,139
Net Income per share	$2.35 (on 4,375,785 shares)	$2.37 (on 3,596,699 shares)
Dividends Paid per share	$1.85	$1.65

SOUTHERN
NATURAL
GAS
COMPANY

For your copy of our 1956 Annual Report, write to Dept. AJ

Southern Natural Gas Company
WATTS BUILDING, BIRMINGHAM, ALABAMA

Southern Natural Gas Supplies The Industrial Southeast

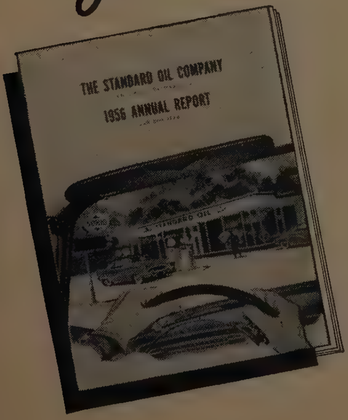
SOHIO

HIGHLIGHTS

	1956	1955
Sales and operating revenue	$365,686,741	$339,705,655
Earnings	$ 26,591,560	$ 23,008,465
Earnings per share of common stock	$5.35*	$4.61*
Dividends per share of common stock . . .	$2.375*	$2.00*
Capital expenditures	$ 50,109,869	$ 47,522,262
Net production of crude oil and other liquid hydrocarbons—barrels (U. S. & Canada) .	12,788,479	11,463,734
Petroleum products sold—barrels	47,932,310	47,368,564
Crude oil processed at refineries—barrels.	51,285,644	47,234,939

*Adjusted for 20% stock dividend paid in June 1956

1956 Our most successful year!



HIGHEST SALES & EARNINGS IN OUR 87-YEAR HISTORY

In 1956, the largest total of capital employed in the Company's 87-year history and increased efficiency of operations combined to produce the new records of sales and earnings summarized in the table above.

Popularity of Sohio products, particularly Boron gasoline and Premex motor oil, was a big reason for the success. In October 1956, a new premium gasoline—Super Boron—was introduced. This new motor fuel successfully meets the highest quality requirements of all new motor cars.

Sohio invested a record $50 million in expansion, modernization and replacement of facilities during 1956. Approximately 59% was for crude oil properties and equipment—including a substantial investment for exploitation concessions in Lake Maracaibo, Venezuela. Other large investments were made to improve and expand manufacturing and marketing facilities. Capital investments are expected to reach $65 million in 1957 —including a large part of the cost of a new integrated refinery now under construction at Toledo, Ohio.

The Company's story for 1956 is told in more detail in the Annual Report. Copies are available upon request to the Secretary.

THE STANDARD OIL COMPANY

(AN OHIO CORPORATION)

MIDLAND BUILDING • CLEVELAND 15, OHIO

1956 ANNUAL REPORT

PUGET SOUND POWER & LIGHT COMPANY

PROGRESS BUILT ON SOLID GROWTH AND DEDICATED SERVICE

1956...

Puget Power's Greatest Year

Underlying this attainment and making for continued dynamic progress are these sources of basic strength:

- A service area (principally in Western Washington) rich with the promise of growth—a 60% increase in population and a 30% gain in per capita income by 1965 are forecast.
- The firm conviction manifested by the people of the Puget Sound-Cascade region that cooperation among their electric utilities is the key to ample low cost power and economic progress. The public demand for a cooperative approach to achieve these ends brought forth the now successfully functioning Puget Sound Utilities Council. This favorable climate of public opinion also has enabled Puget to undertake a $90,000,000 new construction program which, on completion in 1959, will increase the size of the company by 60%. Further, Puget's exceptional capitalization ratio of 39% long term debt and 61% stock equity permits this large scale expansion to be financed without the sale of additional common stock.
- Highly "electric conscious" consumers who strongly hold that electricity is the "well-spring" of better living in a dynamic economy. Compared with the annual national average, Puget's residential customers use nearly 2½ times as many kilowatt hours at a rate fully 50% less.

The area Puget serves is great in physical resources and natural advantages, but greatest of all in creative and productive people. It is these people who provide the foundation for our faith and confidence in a greater tomorrow.

QUICK FACTS–1956

	Amount	% Increase Over 1955
Net Income for Common Stock	$ 5,452,421	11
Per Share of Common Stock	$1.67	11
Per Cent of Operating Revenue	21.6	2
Dividend Rate per Share End of Year	$1.28	7
Operating Revenues	$25,212,731	8
Gross Additions to Utility Plant	$22,606,960	130
Kilowatt-hour Sales (in thousands)	2,083,709	11
Peak Load—Kilowatts	532,300	10
Customers at End of Year . .	192,311	3
Average Annual Kilowatt-hour Use per Residential Customer	7,205	10

For a copy of Puget's 1956 Annual Report, write: Frank McLaughlin, President
860 Stuart Building,
Seattle 1, Washington

PUGET POWER

PUGET SOUND POWER & LIGHT CO.

A vigorous company in a vigorous industry

As an important part of the nation's forward-looking cement industry, General Portland Cement Company has increased its productive capacity by 9,665,000 barrels of cement in 10 years!

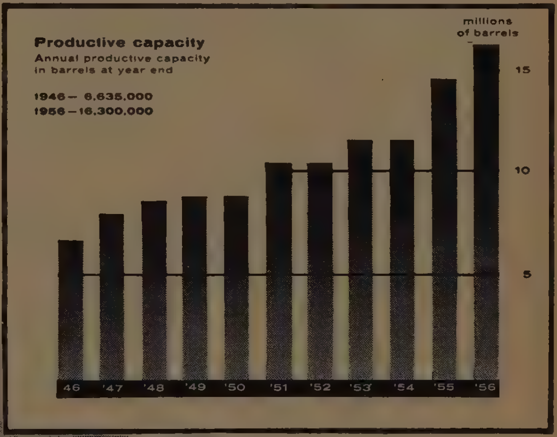
The portland cement industry is fulfilling its obligation to supply all of our nation's needs for cement—including those created by the mammoth highway building program.

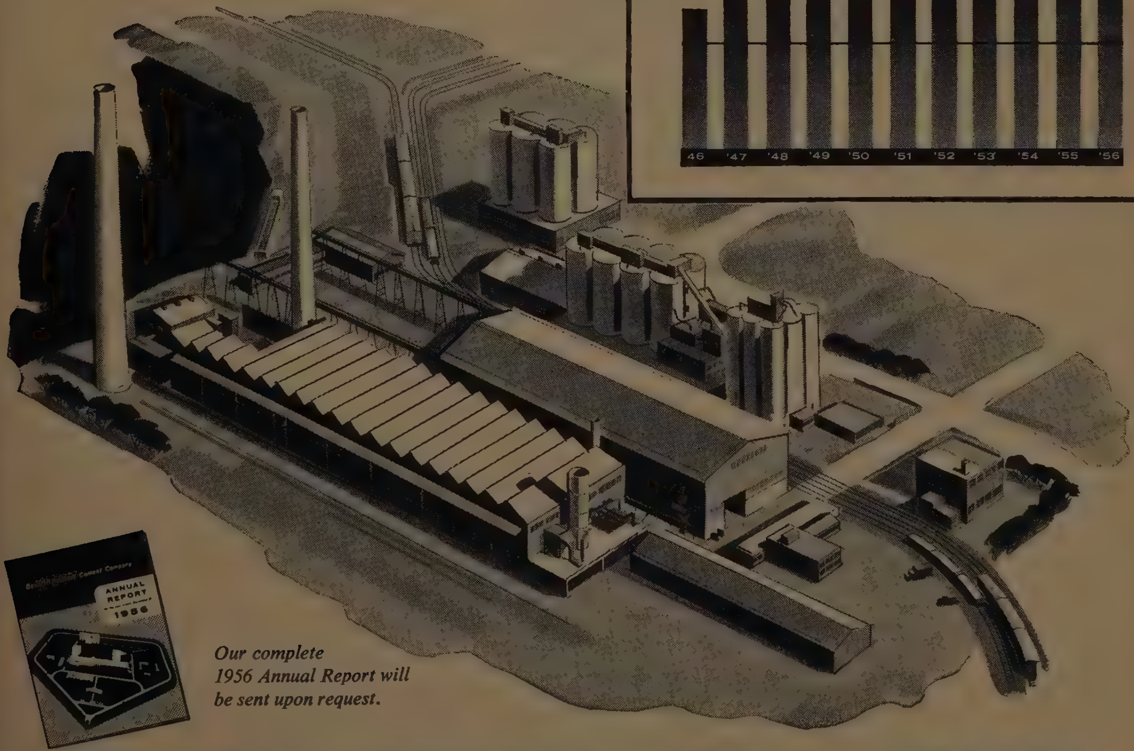
Here's how. For 10 straight years, record-breaking cement demands have been made by industrial, commercial, public works, farm and home construction markets. Since 1946 cement makers like ourselves have been building new and bigger plants, modernizing and expanding existing facilities and adding millions of barrels to productive capacity. Such growth will enable our industry to meet all foreseeable cement requirements and to provide adequate reserve capacity.

General Portland's six manufacturing plants alone have a present rated capacity of 16,300,000 barrels of cement yearly compared with 6,635,000 barrels at the end of 1946. Our seventh plant, now under construction in Dade County, near Miami, Florida, will add another 2,500,000 barrels to our annual productive capacity. Sales have risen from $15 million in 1947 to $45 million in 1956.

Another Record Year in 1956

Comparative statements of income	1956	1955
NET SALES	$45,310,392	$40,751,257
DEDUCTIONS:		
Cost of goods sold	$20,735,752	$19,594,098
Selling and other expenses	3,114,398	2,825,939
Depreciation and depletion	2,868,393	2,564,998
Federal taxes on income	8,800,000	7,400,000
Other deductions	264,320	170,442
Total deductions	$35,782,863	$32,555,477
Net profit	$ 9,527,529	$ 8,195,780





Our complete 1956 Annual Report will be sent upon request.

GENERAL PORTLAND CEMENT COMPANY

111 WEST MONROE STREET • CHICAGO 3, ILLINOIS

PLANTS: DALLAS • FORT WORTH • HOUSTON • CHATTANOOGA • TAMPA

STANDARD OIL COMPANY (INDIANA)

and Subsidiaries Report

Record Highs in Production, Refining and Sales for 1956

In most respects, 1956 was a good year for Standard Oil Company (Indiana). Production, refinery runs and volume of sales all showed increases.

PRODUCTION in 1956 reached an all-time high. At the end of the year, which was a successful one in development of new production and reserves, our net production was about 316,000 barrels per day of crude oil and natural gas liquids, including about 10,000 barrels per day in Canada. This is an all-time high for our company and marks about a three-fourths increase over our production of just 10 years ago. During the year we added 42 million barrels to our proved reserves after replacing the 108 million barrels we produced. At year end the company's proved reserves of crude oil and natural gas liquids were 2,140 million barrels. A subsidiary has been formed to engage in exploration and production in Venezuela and is hopeful of acquiring concessions from the Venezuelan government in 1957. The company also is drilling wells in Cuba and Jamaica.

REFINERY RUNS, which actually were held below capacity much of the year because of the nation's excessive gasoline stocks, showed a 7 per cent increase over 1955. Expanded demand for our products required a record throughput of crude oil and natural gas liquids, averaging 642,343 barrels a day over the year.

SALES set new high records—both in volume of products sold and in dollar value despite intense competition. Total sales volume increased 4 per cent over 1955 and 84 per cent over just 10 years ago. Total value of sales increased 7 per cent over 1955 and 174 per cent over 1946. Total income increased to $1,911,540,141, up 5.4 per cent. Our dollar volume of chemical sales increased by 21 per cent to a total of $17,500,000.

NET EARNINGS FOR 1956 WERE $149,431,710. This was $8 million less than 1955's record total, which included, as was pointed out at the time, a nonrecurring net profit of $9,235,000 from the sale of an oil property interest. Excluding this nonrecurring item, our 1956 earnings were about 1 per cent higher than last year. Per share earnings were $4.33, compared with $4.81 the year before. While better earnings were indicated because of our increased investment and higher volume, our industry has been less successful than others in getting repaid for higher wage and other costs through increased prices. A factor in reducing 1956 earnings was heavy depreciation charges and starting-up expenses for two plants. The consolidation of nine principal subsidiaries into four, which was completed in January, 1957, also involved substantial expense. However, these consolidations will significantly improve efficiency and reduce overhead.

DIVIDENDS IN 1956, including the market value on the date of distribution of the special fourth-quarter dividend in Standard Oil Company (New Jersey) stock, amounted to $2.31 per share. These dividends were valued at $80,041,000. Dividends were paid in 1956 for the 63rd consecutive year.

CAPITAL EXPENDITURES FOR 1956 totaled $292 million, compared with $230 million in 1955. A good part of the increase went into additional leases, geophysical work, drilling and refinery expansion. Capital expenditures for 1957 are expected to be up about 20 per cent. During the year, $30 million principal amount of our convertible debentures were called, and an additional $57.6 million were voluntarily converted. These were the principal factors in a reduction of $91 million in our total borrowings. At year end, borrowings amounted to less than 13 per cent of total assets, as compared with a peak of 21 per cent in June, 1949.

EMPLOYEES AT THE END OF 1956 numbered 52,010, of whom thousands are Standard Oil stockholders. The loyal service of our employees is one of the main factors in our continued progress. In line with our policy of keeping wages and salaries competitive with prevailing rates in the industry, we put into effect a general wage increase of 6 per cent during the year.

STOCKHOLDERS NUMBERED 143,200 at year end, the largest in our history. We have stockholders in every state of the Union and in 35 foreign countries. Museums, libraries, colleges, hospitals and other institutions serving the needs of many people were among those receiving regular Standard Oil dividend checks.

This record of progress reflects constantly improving ability to serve our customers, and demonstrates the splendid support and cooperation of our employees.

CONSOLIDATED STATEMENT OF EARNINGS

For the Years 1956, 1955 and 1954

	1956	1955	1954
Sales and operating revenues	$1,890,227,573	$1,781,317,827	$1,660,343,193
Dividends, interest, and other income	21,312,568	32,636,188	16,195,654
Total income	$1,911,540,141	$1,813,954,015	$1,676,538,847
DEDUCT:			
Purchased crude oil, petroleum products, and other merchandise	$ 909,613,641	$ 849,891,953	$ 794,212,096
Operating, selling, and administrative expenses	597,244,936	561,631,812	553,307,658
State, local and miscellaneous taxes (not including taxes amounting to $326,779,000 in 1956, $288,354,000 in 1955, and $264,952,000 in 1954 collected from customers for government agencies)	52,652,573	49,622,854	44,552,531
Depreciation, and amortization of emergency facilities	93,943,392	87,607,924	77,195,905
Depletion, amortization of drilling and development costs, and loss on retirements and abandonments	62,119,970	51,575,756	45,935,491
Interest expense	9,368,824	11,987,179	11,301,377
Federal taxes on income	36,478,000	43,290,000	29,471,000
Minority stockholders' interest in net earnings of subsidiaries	687,095	1,228,709	3,406,021
Total deductions	$1,762,108,431	$1,656,836,187	$1,559,382,079
Net earnings	$ 149,431,710	$ 157,117,828	$ 117,156,768

Copies of the 1956 Annual Report are available on request as long as the supply lasts. Write Standard Oil Company, 910 S. Michigan Ave., Chicago 80, Illinois.

THE STORY IN FIGURES

	1956	1955	1954
FINANCIAL:			
Total income	$1,912,000,000	1,814,000,000	1,677,000,000
Net earnings	$ 149,430,000	157,120,000	117,160,000
Net earnings per average outstanding share	$ 4.33	4.81	3.73
Dividends paid†	$ 55,360,000	55,970,000	48,780,000
Dividends paid per share†	$ 2.307	2.403	2.083
Earnings retained in the business	$ 94,070,000	101,150,000	68,380,000
Capital expenditures	$ 291,900,000	229,900,000	284,300,000
Total assets	$2,425,000,000	2,332,000,000	2,187,000,000
Net worth	$1,900,000,000	1,701,000,000	1,574,000,000
Book value per share	$ 53.71	51.46	48.48
PRODUCTION:			
Crude oil and natural gas liquids, barrels per day, net	294,855	274,083	249,564
Oil wells owned, net (year end)	10,451	10,080	9,764
Gas wells owned, net (year end)	1,973	1,855	1,763
MANUFACTURING:			
Crude oil and natural gas liquids processed, barrels per day	642,343	601,482	579,500
Crude running capacity, barrels per day (year end)	703,500	655,800	657,700
MARKETING:			
Refined products sold, barrels per day	664,046	640,145	593,855
Retail outlets served	29,890	30,140	30,710
Natural gas sold, thousand cubic feet per day	1,264,370	1,189,068	1,077,803
Crude oil sold, barrels per day	336,930	321,765	310,142
TRANSPORTATION:			
Pipelines built, miles	250	315	1,163
Pipelines owned, miles (year end)	17,480	17,400	17,550
Pipeline traffic, million barrel miles	156,400	146,200	140,500
Tanker and barge traffic, million barrel miles	94,870	94,130	81,290
PEOPLE:			
Stockholders (year end)	143,200	132,800	122,100
Employees (year end)	52,010	51,520	51,270
Wages and benefits	$ 358,600,000	330,800,000	323,100,000

†"Dividends paid" include the value *on this Company's books* of the Standard Oil Company (New Jersey) stock distributed as a dividend. "Dividends paid per share" include the *market* value of the Jersey stock on date of distribution.

INTERNATIONAL HARVESTER COMPANY

The Directors of International Harvester Company have declared quarterly dividend No. 155 of one dollar and seventy-five cents ($1.75) per share on the preferred stock payable June 1, 1957, to stockholders of record at the close of business on May 3, 1957.

GERARD J. EGER, Secretary

MINNEAPOLIS GAS COMPANY

739 Marquette Avenue
Minneapolis 2, Minnesota

Common Stock Dividend

The Board of Directors of Minneapolis Gas Company, at a meeting held on April 12, 1957, declared a dividend of 35 cents per share payable in cash on May 10, 1957, to common stockholders of record as of the close of business April 26, 1957.

H. K. WRENCH, *President*

COMMON STOCK DIVIDEND

The Board of Directors of Central and South West Corporation at its meeting held on April 12, 1957, declared a regular quarterly dividend of forty cents (40c) per share on the Corporation's Common Stock. This dividend is payable May 31, 1957, to stockholders of record April 30, 1957.

LEROY J. SCHEUERMAN
Secretary

CENTRAL AND SOUTH WEST CORPORATION
Wilmington, Delaware

Dennison

MANUFACTURING COMPANY
Framingham, Mass.

DIVIDEND NOTICES

"A" Common and Voting Common: A quarterly dividend of 40 cents per share on the "A" Common and Voting Common Stocks will be paid June 3, 1957, to stockholders of record May 6, 1957.

Debenture: The regular quarterly dividend of $2.00 per share on the Debenture Stock will be paid June 3, 1957, to stockholders of record May 6, 1957.

R. N. Wallis, *Treasurer*

113TH YEAR

N

E

S

VEPCO

A CLIMATE FOR GROWTH

MORE POWER
MORE PROFITS

FOR THE YEAR 1956

A strategic location . . . rich resources . . . prosperous businesses and sound industrial expansion. These are the factors that make Virginia Electric and Power Company's service area an **ideal climate** for growth.

In the past decade, Vepco has almost tripled its generating capacity. New plants, new facilities, increased customers and revenues reflect the progress and prosperity of the Company and the area it serves.

1956 was a record year. But the future will be bigger. Construction now underway or planned to meet increasing demands for service will increase generating capacity in the next three years 50% over the 1956 level. By 1960, Vepco's system capacity will have grown to 1,900,000 kilowatts.

1956 IN BRIEF

	1956	Increase over 1955
Utility Plant	$521,779,000	$41,383,000
Operating Revenues	$117,798,000	$11,644,000
Balance for Common Stock	$18,341,000	$ 1,560,000
Earnings Per Share (6,600,000 shs.)	$2.78	$.24
Number of Customers	774,000	34,000
Sales—thousands of kwh	5,531,000	585,000
Service Area Peak Load—kw	1,213,000	71,000
Sales—thousands of cu. ft.	4,823,000	860,000

VIRGINIA ELECTRIC AND POWER COMPANY
7th and Franklin Streets, Richmond, Virginia
Copies of our 1956 Annual Report to Stockholders available upon request.

"Look, Ma—no hands!"

Easy . . . now that IT&T provides smooth, automatic piloting for private and executive aircraft.

When flying—you must be constantly alert, keep close watch on the performance of your plane, observe air traffic, check course, maintain radio contact. And all the while you are making constant corrections in heading and altitude. Rough weather makes the job tougher, intensifies strain. How often have you wished for a co-pilot to take over the controls?

Now you can have the Federal AUTOPILOT to "take over"—and flying can be even more fun. It is the first *tubeless* automatic pilot engineered for small aircraft, giving you absolutely dependable automatic flight at a *low price.* The AUTOPILOT stabilizes and maneuvers your plane smoothly, instantaneously and positively—and for increased safety you can override the AUTOPILOT at any time.

Here is an important innovation in precision airborne equipment now offered at lowest cost by International Telephone and Telegraph Corporation.

IT&T

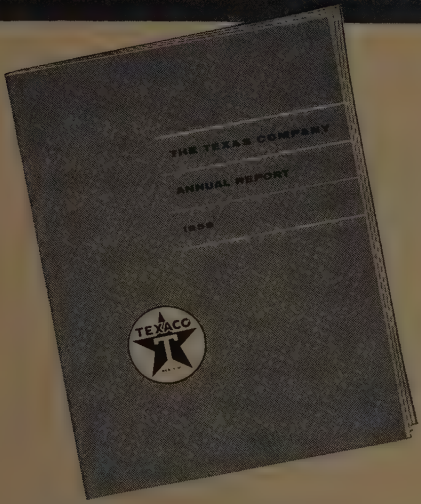
INTERNATIONAL TEL AND TEL

INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION, 67 Broad Street, New York 4, N. Y.

For information about the Federal AUTOPILOT address Federal Telephone and Radio Company, a division of IT&T, Clifton, N. J.

THE TEXAS COMPANY

REPORTS FOR 1956



A limited number of copies of the Annual Report are available upon request to the Secretary, The Texas Company, 135 East 42nd Street, New York 17, N.Y.

HIGHLIGHTS

FINANCIAL	**1956**	**1955**
Net income	$302,262,620	$262,729,738
*Net income per share	$5.51	$4.79
Cash dividends paid	$128,978,474	$116,624,624
*Cash dividends paid per share	$2.35	$2.13
Working capital (end of year)	$598,547,070	$538,658,293
Capital expenditures	$502,613,766	$283,090,555
Exploration expenses, including dry holes	$ 92,292,820	$ 78,247,215
****OPERATING • Barrels per day**		
Gross crude oil produced:		
Western Hemisphere	577,050	528,396
Eastern Hemisphere	393,295	357,246
Total world-wide	970,345	885,642
Refinery crude oil runs:		
Western Hemisphere	726,929	641,506
Eastern Hemisphere	248,945	230,594
Total world-wide	975,874	872,100
Petroleum product sales:		
Western Hemisphere	702,490	625,650
Eastern Hemisphere	281,110	237,046
Total world-wide	983,600	862,696

**Adjusted for the two-for-one stock split in May, 1956.*

***These statistics include 100% of the operations of subsidiary companies and the Company's equity interest in the operations of companies owned 50% or less.*

CONSOLIDATED BALANCE SHEET—DECEMBER 31

ASSETS

CURRENT ASSETS:	**1956**	**1955**
Cash and securities	$ 266,783,841	$ 265,312,018
Accounts and notes receivable	269,212,883	193,672,844
Inventories	312,536,934	270,988,161
Total current assets	$ 848,533,658	$ 729,973,023
INVESTMENTS AND ADVANCES	$ 182,216,486	$ 134,443,255
PROPERTIES, PLANT, AND EQUIPMENT:		
Gross	$2,857,950,714	$2,440,239,547
Less—Depreciation, depletion, and amortization	1,422,483,869	1,224,270,087
Net properties, plant, and equipment	$1,435,466,845	$1,215,969,460
DEFERRED CHARGES	$ 37,912,810	$ 34,190,059
	$2,504,129,799	$2,114,575,797

LIABILITIES AND STOCKHOLDERS' EQUITY

CURRENT LIABILITIES:	**1956**	**1955**
Notes, contracts, and accounts payable and accrued liabilities	$ 214,701,923	$ 170,546,401
Estimated income taxes (less Government obligations—$70,000,000)	35,284,665	20,768,329
Total current liabilities	$ 249,986,588	$ 191,314,730
LONG-TERM DEBT	$ 363,855,182	$ 208,968,985
RESERVES	$ 9,589,629	$ 9,275,252
MINORITY INTEREST	$ 30,725,994	$ 28,328,570
STOCKHOLDERS' EQUITY:		
Par value of capital stock issued—shares $25 each	$1,381,262,400	$ 690,631,200
Capital surplus	—	2,411,250
Retained earnings used in the business	468,710,006	983,645,810
Total stockholders' equity	$1,849,972,406	$1,676,688,260
	$2,504,129,799	$2,114,575,797

CONSOLIDATED INCOME STATEMENT

	1956	**1955**
GROSS INCOME:		
Sales and services	$2,046,305,092	$1,767,266,455
Dividends, interest, and other income	131,045,562	123,233,079
	$2,177,350,654	$1,890,499,534
OPERATING AND OTHER CHARGES:		
Costs, operating, selling, and general expenses	$1,485,605,286	$1,285,091,487
Taxes (other than income)	63,977,198	55,629,285
Dry hole costs	43,145,321	36,058,904
Depreciation, depletion, amortization, and leases surrendered	189,899,810	171,706,580
Interest charges	8,512,730	6,654,708
Provision for income taxes	78,600,000	68,300,000
Minority interest in net income of Canadian subsidiaries	5,347,689	4,328,832
	$1,875,088,034	$1,627,769,796
NET INCOME FOR THE YEAR	$ 302,262,620	$ 262,729,738

TEXACO

Developments of 1956 reflect a pattern for progress

Symbol of Service Throughout the World

The 1956 achievements of W. R. Grace & Co. fit into its long-range pattern for progress. During the year the Company accelerated research and development . . . pushed construction and enlargement of manufacturing plants here and abroad . . . took further steps to expand paper and chemical operations in Latin America . . . and proceeded with the program of replacing the Grace Line fleet.

During a year of record-high capital expenditures, the Company also reported higher earnings for the fourth consecutive year. For the complete story on these and other developments in *Casa Grace*, see the 1956 Annual Report.

Highlights of the Year's Operations

Year Ended December 31,	**1956**	**1955**
Sales and Operating Revenues	$438,136,637	$427,066,329
Net Income After Taxes	$ 19,785,020	$ 18,780,394
Per share of common stock (Based on average number of shares outstanding)	$ 4.41	$ 4.21
Preferred Dividends Paid	$ 936,498	$ 960,000
Common Dividends Paid	$ 9,828,042	$ 8,473,117
Per share—At rate of	$ 2.30	$ 2.00
Net Working Capital	$108,137,879	$129,845,130
Current Ratio	2.2 to 1	2.5 to 1
Net Fixed Assets	$163,888,582	$138,568,405
Stockholders' Equity per Common Share	$ 46.91	$ 45.56
Number of Common Shares Outstanding	4,493,193	4,284,831
Number of Common Stockholders	21,178	16,623
Number of Employees	44,795	44,505

THE GRACE ORGANIZATION

W. R. GRACE & CO., backed by a century of experience in business and industry, continues to move ahead—in chemical manufacturing and processing . . . in widespread Latin-American enterprises . . . in world trade, transportation and finance.

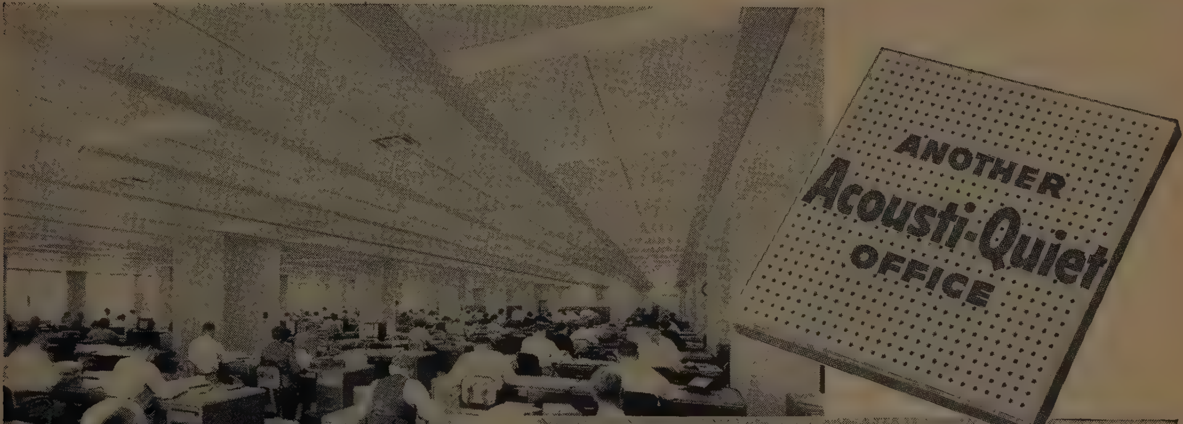
CRYOVAC COMPANY DIVISION
DAVISON CHEMICAL COMPANY DIVISION
DEWEY AND ALMY CHEMICAL COMPANY DIVISION
DEWEY AND ALMY OVERSEAS COMPANY DIVISION
FOSTER AND KLEISER COMPANY DIVISION
GRACE CHEMICAL COMPANY DIVISION
GRACE RESEARCH AND DEVELOPMENT DIVISION
GRACE LINE INC.
GRACE NATIONAL BANK OF NEW YORK
POLYMER CHEMICALS DIVISION
LATIN AMERICAN PAPER AND CHEMICAL GROUP
SOUTH AMERICAN GROUP

For a copy of the 1956
Annual Report write
W. R. Grace & Co., Dept. AJ
7 Hanover Square, N.Y. 5

W. R. GRACE & CO.

Executive Offices: 7 Hanover Square, New York 5

Sinclair Oil's New Chicago Headquarters —Completely Sound Conditioned with Acousti-Celotex Tile



Sinclair Oil Building, 155 North Wacker Drive, Chicago
Owner: John W. Galbreath & Co., Inc.
Architect: Holabird & Root & Burgee
Builder: Turner Construction Company
Acoustical Contractor: James L. Lyon Co.

Lighting and air conditioning also included in integrated* system

John W. Galbreath & Co., Inc. has gone all-out for employee efficiency and comfort in this outstanding new Chicago office building. Throughout the 200,000 square feet of the building, Acousti-Celotex Mineral Tile traps machine clatter and voice chatter, reduces routine noise in general and private offices and corridors. For the Sinclair Oil Company and other tenants, this means that errors will be reduced, over-time lessened, productivity increased.

Low in Cost — Easily Maintained — Acousti-Celotex Tile provides economical sound-conditioning. No special maintenance is required. Beauty and cleanliness add to the advantages of highly effective sound-absorption. Acousti-Celotex Tile can be washed *repeatedly*, painted *repeatedly* without loss of sound absorbing efficiency.

*Acousti-Celotex incombustible Perforated Mineral Tile is installed on the Celotex Acousti-Line® Metal Suspension Ceiling, where Tile, light fixtures and air diffusers become interchangeable parts of the ceiling. When a new layout is desired, units can be quickly relocated . . . economically!

TRADE MARK

ACOUSTI-CELOTEX

REGISTERED U. S. PAT. OFF.

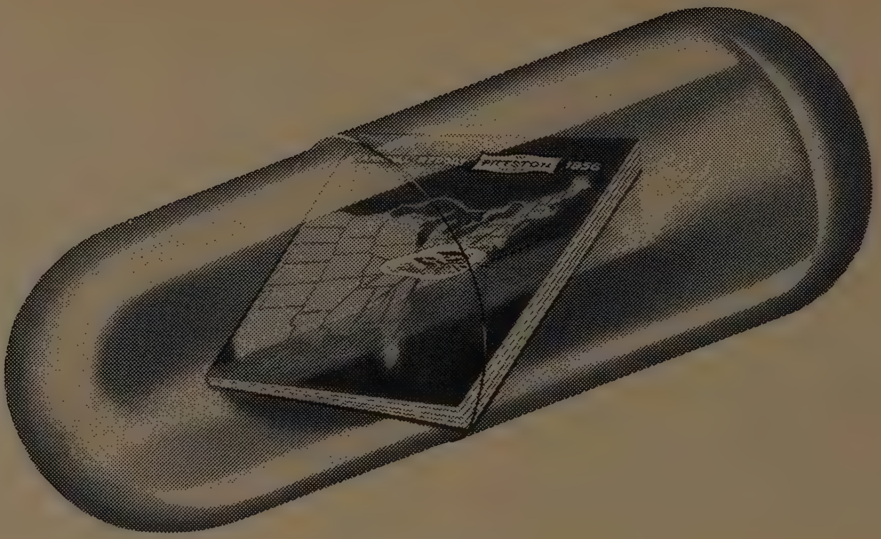
Sound Conditioning

FOR FULL DETAILS on the complete line of Acousti-Celotex products, please write to The Celotex Corporation, Dept. AJ-57, 120 S. La Salle Street, Chicago 3, Illinois.

Products for Every Sound Conditioning Problem

THE CELOTEX CORPORATION, 120 S. LA SALLE ST., CHICAGO 3, ILLINOIS. IN CANADA: DOMINION SOUND EQUIPMENTS, LTD., MONTREAL, QUEBEC

THE PITTSTON COMPANY



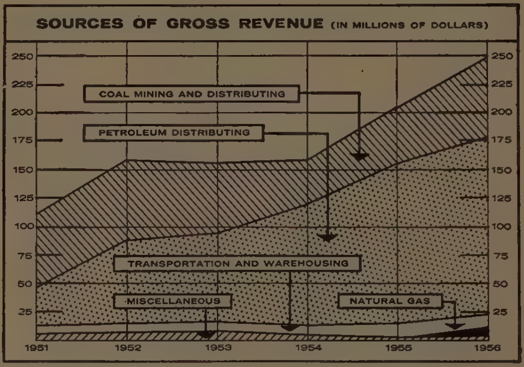
In a Capsule

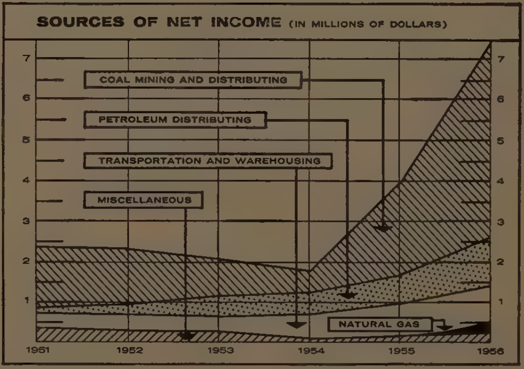
FINANCIAL HIGHLIGHTS OF THE PITTSTON ANNUAL REPORT

	1956	1955
Net tons of coal sold	12,276,309	10,945,859
Barrels of petroleum products sold	43,832,166	40,195,249
Total revenues	$246,204,246	$205,798,315
Net earnings *(Note A)*	7,438,038	3,947,962
Net earnings per share of common stock *(Note A)*	6.30	3.06
Common stock dividends:		
Cash *(Note B)*	1,961,345	1,501,717
Stock	2,926,980	1,607,620
Depreciation, depletion and amortization	4,898,648	4,152,774
Expenditures for property, plant and equipment	23,037,405	9,180,287
AT YEAR END:		
Total Assets	$150,059,645	$121,458,752
Stockholders' equity *(Note A)*	54,931,550	48,579,062

(A) Adjusted to give effect to merger with Clinchfield Coal Corporation.

(B) Including dividends to former minority stockholders of Clinchfield Coal Corporation and cash in lieu of fractional shares on stock dividend.


SOURCES OF GROSS REVENUE (IN MILLIONS OF DOLLARS)


SOURCES OF NET INCOME (IN MILLIONS OF DOLLARS)

THE PITTSTON COMPANY

250 Park Avenue, New York 17, N. Y.

A DIVISION OF THE PITTSTON COMPANY

Clinchfield Coal Company Division, Dante, Va. and Clarksburg, W. Va. • Lillybrook Coal Company, Lillybrook, W. Va. • Amigo Smokeless Coal Company, Lillybrook, W. Va. • Metropolitan Petroleum Corporation, New York • Maritime Petroleum Corp., New York • Globe Fuel Products, Inc., Chicago, Ill. Metropolitan Coal Company, Boston, Mass. • Greater Valley Terminal Corporation, Philadelphia, Pa. • Pittston Clinchfield Coal Sales Corp., New York Davis-Clinchfield Export Coal Corporation, New York • Routh Coal Export Corp., New York • United States Trucking Corporation, New York Baker & Williams, New York • Tankport Terminals, Inc., Jersey City, N. J. • Plattsburg Terminal Corporation, Plattsburgh, N. Y. Valentine Tankers Corporation, New York.

WHAT'S IN PHILIP MORRIS PACKAGES AND PACKAGING FOR YOU?

These days things are *different* in the market place. In drugstores, tobacco shops, supermarkets, and vending machines, sales have responded to products with the "buy me" built in the packaging.

Philip Morris pioneered the colorful Flip-Top Box to bring you the full pleasure of each of its richly blended brands. *No crushed cigarettes—each as fresh, firm, and straight as the first—no loose tobacco in pocket or purse.*

Look to Philip Morris for the pace-setting pattern. Look to Philip Morris to bring more pleasure to more smokers everywhere.

COMPARISON OF EARNINGS

3 MONTHS ENDED MARCH 31	1957	1956
NET SALES	$80,189,588	$72,218,615
NET INCOME AFTER TAXES	2,556,860	2,530,436
EARNINGS PER COMMON SHARE	$0.80	$0.79

PHILIP MORRIS *INCORPORATED*

Renee Reifel

She wants to know what we did with the $401,518,000

Renee Reifel is a secretary in the marketing department of Union Oil. She is also—through our Employees' Incentive Plan—one of our 5,906 employees who hold shares in the firm.

This entitles her (along with over 65,000 other people who own shares in Union Oil) to a report on the 66th year of business of the 47th largest industrial company in the country.

In 1956 our customers paid us $401,518,000—a new record.

How we spent it

We spent 72.1% of this—or $289,481,000—with over sixteen thousand other companies and individuals with whom we do business.

The more than 1000 tax collecting agencies took another 3.7%, or $14,830,000. This does *not* include the $74,120,000 we collected from our customers as fuel taxes and turned over to governmental agencies.

Wages and other benefits for our workers and their families amounted to 15.7%, or $62,966,000 of our income.

This left 8.5%—or $34,241,000—as net profit. Slightly more than half of these earnings—$18,261,315—were paid in cash dividends to Renee Reifel and our other 65,000 share owners.

The balance of our net earnings—equal to 4.0% of our customers' dollars—we reinvested in the company in order to stay in business.

The new ownership

It seems to us this report does more than give an account of our stewardship to Renee Reifel and our other owners.

It points up the broader base of ownership of American business. In the last four years, for example, the shareholders of all companies listed on the New York Stock Exchange increased by 33%. Union Oil did even better—41%.

This could happen only in a freely competitive economy that encourages and rewards individual effort.

* * * *

YOUR COMMENTS ARE INVITED. *Write: The Chairman of the Board, Union Oil Co., Union Oil Bldg., Los Angeles 17, Calif.*

Union Oil Company OF CALIFORNIA

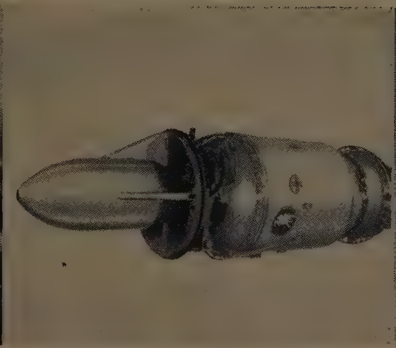
MANUFACTURERS OF ROYAL TRITON, THE AMAZING PURPLE MOTOR OIL

Building new Strength for the Future

through

New Products
Advanced Engineering
Research and Development
Diversification

Production is begun on F-27 twin prop-jet, 40-passenger, pressurized transport for air lines and corporations; orders mount rapidly.

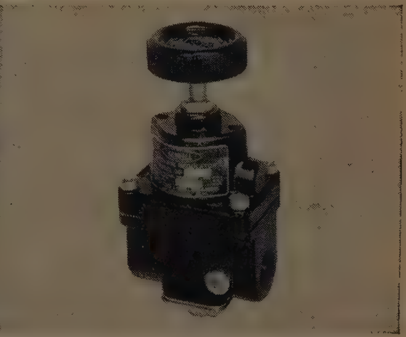


U. S. Air Force and U. S. Navy place $18,000,000 in new orders for propulsion research and production of turbo-jet engines.

New flight weapons system is in advanced stages of development, marking new contribution to the nation's preparedness program.

New concept of light-weight gun construction evolves revolutionary automatic rifle, military survival rifle and feather-weight weapons for sportsmen.

U. S. Navy releases new information on capabilities of Fairchild Petrel, air-to-surface missile — a reliable weapon for use against enemy ships.



New series of industrial pressure regulators now being manufactured and supplied for numerous military and commercial applications.

Financial Highlights for the year	1956	1955
Sales and Other Income	$155,448,254	$154,852,747
Earnings before Federal Income Taxes	4,071,484*	8,979,650
Net Earnings	1,951,484	4,270,650
Unfilled Orders	187,000,000	185,000,000
Net Working Capital	19,327,223	18,496,383
Ratio of Current Assets to Current Liabilities	1.5 to 1	1.7 to 1
Number of Shares Outstanding	3,038,272	3,032,146
Number of Employees	11,909	11,287

**After deducting $328,175 prior-year renegotiation adjustment*

FAIRCHILD
ENGINE AND AIRPLANE CORPORATION • HAGERSTOWN 15, MARYLAND

DIVISIONS:

FAIRCHILD AIRCRAFT DIVISION
HAGERSTOWN, MD. • ST. AUGUSTINE, FLA.
FAIRCHILD ENGINE DIVISION
DEER PARK, N. Y. • VALLEY STREAM, N. Y.
STRATOS DIVISION
BAY SHORE, N. Y. • BABYLON, N. Y.
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WYANDANCH, N. Y. • COPIAGUE, N. Y.
FAIRCHILD ELECTROTECHNICS DIVISION
COSTA MESA, CALIF.
FAIRCHILD KINETICS DIVISION
NEW YORK, N. Y.
FAIRCHILD ARMALITE DIVISION
HOLLYWOOD, CALIF.

NATIONAL STEEL'S SALES AND OPERATING REVENUE HIT NEW PEAKS FOR 1956

On many fronts, 1956 was a year of progress for National Steel Corporation. Sales revenue, net profits, dividends, payments for employee wages and benefits, and property additions, all surpassed the comparable results of 1955 by margins ranging from comfortable to wide.

This achievement was the more notable because it was accomplished in spite of the five-weeks' strike in the steel industry which interrupted production at all operating units of National Steel Corporation excepting those of its Weirton Steel division.

A RECORD SALES YEAR

In 1956, National Steel's sales broke all previous records at $664,251,090, a figure that topped 1953's all-time sales record by more than $30,000,000. Total income amounted to $671,105,768. Net earnings totaled $52,502,422 ($7.09 per share on 7,404,318 shares) . . . a sizable gain over the previous year's earnings of $48,289,453.

Dividends paid in 1956 amounted to $29,568,645, or $4 per share (1955's dividends totaled $23,940,275). The balance of earnings—$22,933,777—was retained in the business to help finance National Steel's long range program of expansion and improvement. The 1956 provision for depreciation, depletion and amortization was $45,344,338—compared with $40,235,237 in 1955.

INVESTMENT VALUE

The retention of a substantial portion of earnings and a liberal depreciation policy are particularly necessary in the present period of very high construction costs and, as experience proves, are the surest means of maintaining and increasing the value of the stockholders' investment.

To help finance completion of the present construction program, bonds were issued in 1956 in the amount of $55,000,000—increasing total long term debt to $110,000,000. It is anticipated that no further financing will be required for this purpose.

NEW CONSTRUCTION BOOMING

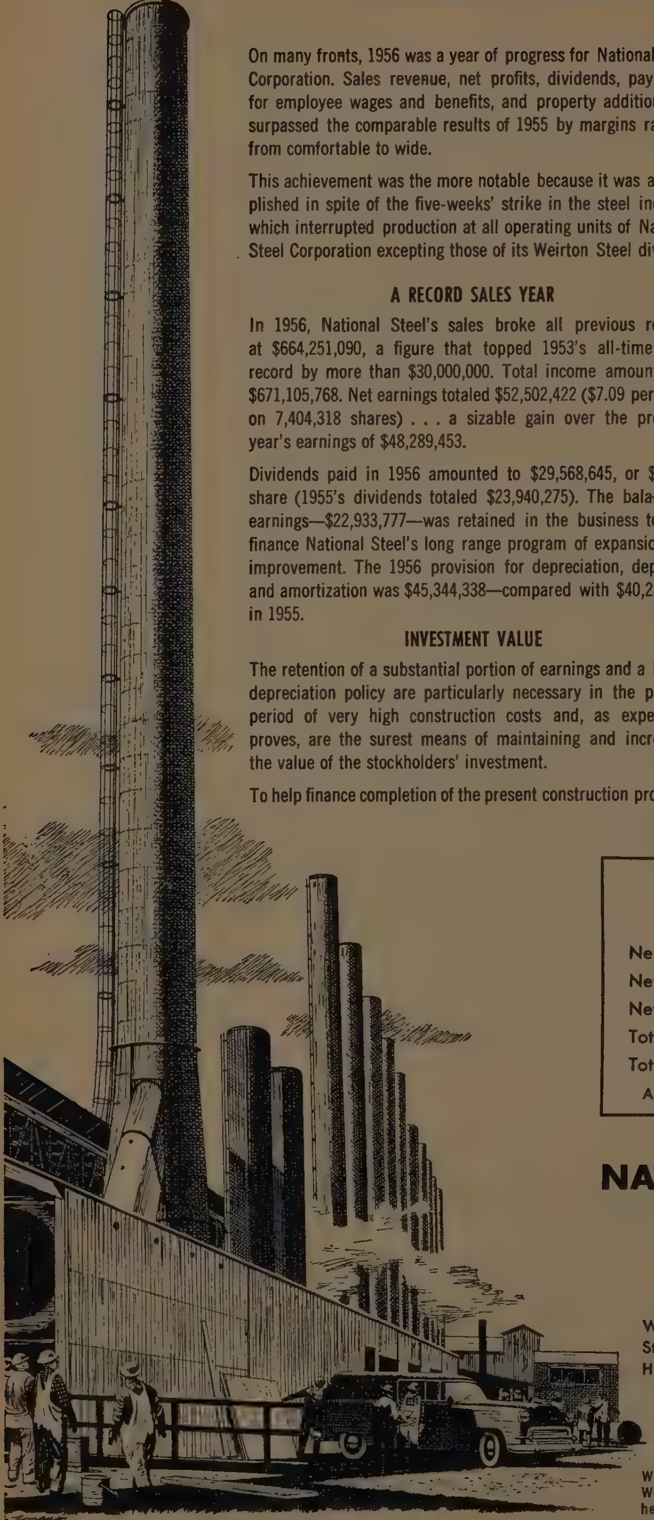
Property additions—including investments in affiliated raw materials companies—totaled about $109,000,000. An estimated $95,000,000 will be spent to complete National's building projects this year. With the completion of the current construction program (early in 1958), the Company's annual steel-making capacity will reach a minimum of 7,000,000 tons.

This program embraces the installation of major new facilities, plus improvements and additions to auxiliary facilities and equipment. Representative of physical improvements are four major facilities added at Weirton Steel division in 1956, three of these setting new steel industry records for facilities of their type. Projects were completed in many departments at Great Lakes Steel Corporation, too—and 1957 is seeing the completion of new installations of great importance at various National Steel operations.

JOBS AND PAYROLLS UP

In line with National's other advances, employment and payrolls also took a forward step in 1956. The average number of employees was 29,204 compared with 28,889 the year before. Total wages and salaries came to $177,493,191 compared to $164,217,372 in 1955. Employee benefit payments totaled $17,111,260, an increase of approximately $3,500,000 over similar payments the preceding year.

For National Steel, 1956 goes into the record as a year of solid achievement.



With a rated capacity of 600 tons per heat, Weirton Steel's No. 14 is the largest open-hearth furnace in the history of steel.

1956: A GAINFUL YEAR

	1956	1955
Net sales...............	$664,251,090	$622,018,919
Net earnings............	52,502,422	48,289,453
Net earnings per share...	7.09	6.54
Total employment cost....	194,604,451	177,913,219
Total dividends paid.....	29,568,645	23,940,275

A copy of our Annual Report for 1956 will be mailed upon request.

NATIONAL STEEL CORPORATION

GRANT BUILDING NATIONAL STEEL PITTSBURGH, PA.

Owning and Operating
Weirton Steel Company • Great Lakes Steel Corporation
Stran-Steel Corporation • The Hanna Furnace Corporation
Hanna Iron Ore Company • National Mines Corporation
National Steel Products Company

SERVING AMERICA BY SERVING AMERICAN INDUSTRY

TOLEDO EDISON REPORTS

Our Annual Report for 1956 has been mailed to our 80,000 investor-owners. It reflects another year of growth for this progressive power company which serves upwards of half a million people in 2500 square miles of Northwestern Ohio—one of the nation's finest areas. We will be happy to send you a copy upon request.

HIGHLIGHTS

Again, in 1956, sales increased.

Each class of customer—residential, commercial, farm and industrial—used substantially more electricity.

Operating revenue increased five per cent . . . gross income increased ten per cent.

Operating efficiencies produced an eight per cent reduction in fuel cost, despite increased fuel prices, higher freight rates, more power generated.

Because of a decrease of approximately $1-million in interest charged to construction and an increase in interest on a larger debt, this gain was not reflected in comparative earnings to common.

A second generating unit at our new Bay Shore Station—one of the most efficient in the country—was begun in 1956. It will account for $10.5-million of our $19-million construction budget for 1957.

Our active participation in research and development of atomic energy for electric power production continues.

RESULTS OF OPERATIONS

For years ended December 31, 1956 and 1955

	1956	1955
	(Thousands of Dollars)	
OPERATING REVENUES	$ 40,323	$ 38,419
OPERATING EXPENSES:		
Fuel used in power plants	$ 7,467	$ 8,090
Other operation expense	8,394	8,351
Maintenance	2,701	2,630
Depreciation	3,826	3,047
General taxes	3,186	2,892
Federal income taxes	4,098	5,084
Deferred Federal income taxes	2,008	380
Total Operating Expenses	$ 31,680	$ 30,474
Operating Income	$ 8,643	$ 7,945
OTHER INCOME	173	16
Gross Income	$ 8,816	$ 7,961
INCOME DEDUCTIONS:		
Interest on long-term debt	$ 2,327	$ 2,010
Interest charged to construction (credit*)	79*	1,079*
Other income deductions	43	39
Total Income Deductions	$ 2,291	$ 970
Net Income	$ 6,525	$ 6,991
PREFERRED DIVIDENDS (ACCRUAL BASIS)	1,333	1,333
EARNINGS ON COMMON STOCK	$ 5,192	$ 5,658
EARNINGS PER COMMON SHARE	$1.01	$1.10

THE TOLEDO EDISON COMPANY

TOLEDO 4, OHIO

Serving Northwestern Ohio

New compressor stations, like the one pictured above, are constantly being built to meet the steadily increasing demands for natural gas. These compressor stations pump natural gas through Columbia's 36,716 miles of pipeline to homes and industries in America's Heartland.

Columbia's Thinking Is *Constructive*

Customers in the area served by the Columbia Gas System keep calling for more and more natural gas—to meet a constantly increasing need for energy. To supply it, facilities with greater capacity must be constructed—new or enlarged compressing stations, pipe lines, metering stations and other equipment. So Columbia must think constructively!

During the past decade, the Columbia Gas System has spent more than a half billion dollars for construction. This year alone, Columbia expects to spend about $87 million on new facilities—to meet immediate and future natural gas requirements of more than three million families, businesses and industries in the dynamic and growing Heartland of American commerce and industry.

Where System companies serve within this seven-state Heartland—Pennsylvania, Ohio, West Virginia, Virginia, Kentucky, Maryland and southern New York—Columbia's residential sales have doubled, its househeating customers have increased almost three-fold in just ten years.

Growth in the Heartland shows no signs of diminishing . . . so to keep pace with the Heartland's growth, to provide the facilities and the service a growing number of customers require, Columbia thinks and plans constructively for the future.

serving homes and industry in America's Heartland

★
COLUMBIA
GAS
SYSTEM
★
★

THE COLUMBIA GAS SYSTEM, INC.

COLUMBIA GAS SYSTEM SERVICE CORPORATION

120 East 41st Street, New York 17, N.Y.

CHARLESTON GROUP: United Fuel Gas Company, Amere Gas Utilities Company, Atlantic Seaboard Corporation, Central Kentucky Natural Gas Company, Virginia Gas Distribution Corporation, Kentucky Gas Transmission Corporation **COLUMBUS GROUP:** The Ohio Fuel Gas Company . . . **PITTSBURGH GROUP:** The Manufacturers Light and Heat Company, Columbia Gas of New York, Inc., Cumberland and Allegheny Gas Company, Home Gas Company

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OUTBOARD MARINE CORPORATION

DIVIDEND NOTICE

A cash dividend of fifty cents (50c) per share on the Common Stock of the Company has been declared by the Board of Directors, payable May 24, 1957, to stockholders of record May 8, 1957.

H. M. FISHER, Secretary

April 19, 1957

For 27th Consecutive Year Mountain Fuel Supply Co. Sets New High Records in Utah-Wyoming Area

Operations of Mountain Fuel Supply Co. in 1956 reached new highs, with marked improvement over 1955.

Number of customers increased from 126,081 in 1955 to 135,665 in 1956 or 7.6%. For the same period gas sales increased to 65.925 billion cubic feet compared with 59.218 billion cubic feet sold in 1955, or 11.3%.

Volume of gas run through the Company's system in 1956 was more than double the volume of six years ago and more than three times the volume of ten years ago.

Brief Comparison 1956-1955

	1956	1955
Total assets (depreciated basis)	$73,913,112	$69,032,138
Total revenues	24,335,808	22,502,983
Net income	3,631,295	3,293,656
Net income per share	1.66 (on 2,188,891.4 shares)	1.59 (on 2,076,584.4 shares)
Dividends	1.20	1.10
Number of stockholders	12,449	11,498

The Company owns and operates 94 miles of gathering lines, 470 miles of transmission lines, 2,112 miles of distribution mains and 702 miles of customer service lines. System capacity is 291 million cubic feet per day.

Dividends have been paid continuously by the Company since 1935. Present dividend rate is $.30 per share a quarter. Listed on the Pittsburgh Stock Exchange.

ANNUAL REPORT 1956

Copy of Annual Report will be sent on request.

MOUNTAIN FUEL SUPPLY CO.

Serving 73 Communities in the Salt Lake City - Ogden - Provo area of Utah and southwestern Wyoming.

General Office: 36 South State Street — Salt Lake City 10, Utah

Lockheed Management answers your questions about:

Lockheed's Missile Business

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1. How much missile business is Lockheed doing?

Lockheed's Missile Systems Division, which began functioning as a separate division in late 1953, has multiplied its sales seven times in the past two years. Sales in 1956 were $53 million; current backlog is in excess of $36 million; and another $50 million is in final negotiation. Sales forecast for 1957: $75 million.

2. What is Lockheed investing in new missile facilities?

During 1955-56 Lockheed's Missile Systems Division quadrupled its work force to 5,000, and more than doubled the space occupied by its laboratories, test equipment, shops and offices. By the end of 1957 this division will be operating $30 million worth of facilities and equipment at its three present locations—Palo Alto, Sunnyvale, and Van Nuys, California. More than a third of its 905,000 square feet of space now in use or under construction is for manufacturing, ideally suited to large volume missile production.

3. What contracts does Lockheed presently have in the missiles field?

Lockheed Missile Systems Division scientists and engineers are engaged in 15 separate missile projects—involving research and development in 40 areas of advanced missile technology, including: nuclear physics, high-altitude research, ultrasonic aerodynamics, heat problems, new and rare materials, rocketry, electronics, human capacities, high-speed automatic data reduction, and outer space theory and its applications.

For security reasons, only 3 of the Division's 15 contracts can be disclosed: One is the Polaris, the U.S. Navy's intermediate-range Fleet Ballistic Missile—which can be launched from submarines. Second are the X-7 supersonic ramjet test missiles which can be recovered by parachute after each flight, unlike most missiles, and re-used—thus saving the Air Force $350,000 on every flight. Third are the X-17 three-stage rockets, which weigh six tons and are as tall as a four-story building. The X-17's mission: to obtain important data about the re-entry of long-range ballistic missiles into the earth's atmosphere from outer space. It is a key link in our nation's ballistic missiles program (which includes the Atlas, Titan, Thor and Lockheed's own Polaris).

4. How does Lockheed's position in the missiles field compare with other airframe manufacturers?

In 1956, after only 3 years as a separate division, Lockheed Missile Division sales exceeded the Department of Defense's entire expenditures for missiles just six years ago.

Further, the Missile Division has become a major contractor on one of the nation's 4 significant long-range missiles of the future

Lockheed's work, which at first concentrated on study programs in varied fields, now is shifting to work on very advanced articles with large volume production prospects. Long after many of the subsonic, short-range, and limited-use missiles of today are obsolete and out of production, Lockheed's new missiles will be in production.

5. How will the growing emphasis on missiles-for-defense affect Lockheed's sales and production of aircraft?

Far from reducing Lockheed's rising volume of business, this new emphasis will add to it.

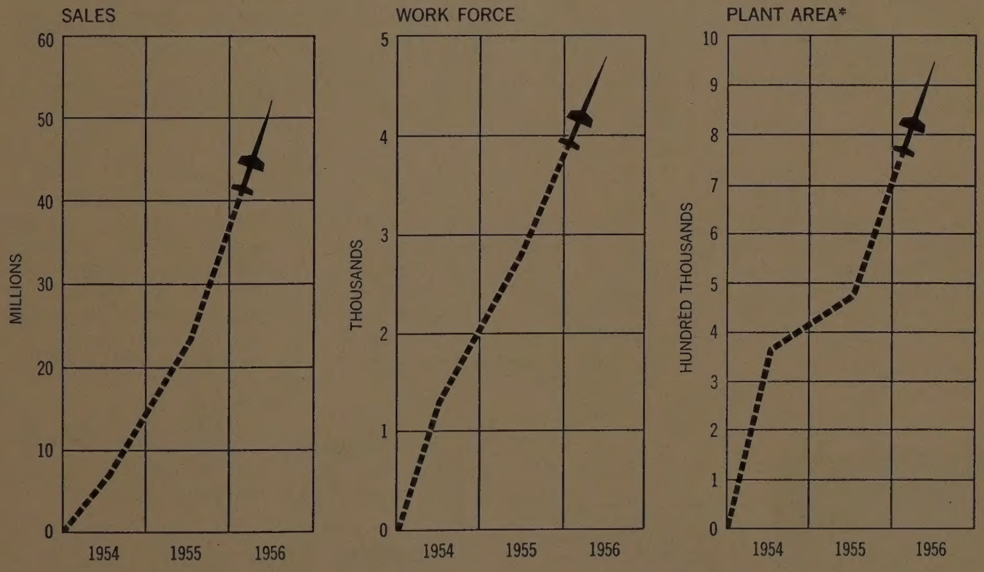
At the end of 1956, Lockheed's backlog for all divisions was $1,597,523,000—up 31% from the year before and the largest since mid-1953. Of this backlog, 52% was Air Force orders, 20% Navy, 28% commercial.

Because this diversification, among the widest in the industry, includes several types most needed by the Armed Forces in the years ahead, military aircraft production will remain high at Lockheed.

Commercial business is expanding, too. At the year-end, Lockheed's commercial backlog was $444,871,000, the largest in the company's history. Both cargo and passenger transports are in production. Newest of these: the STARLINER, world's longest-range luxury liner, currently in delivery; the prop-jet ELECTRA, starting in production and designed to fill profitably the needs of short-to-medium range schedules in the coming decade of commercial jet flight.

These orders are evidence of the wide opportunities for continuing production of military manned aircraft as well as for planes that will deliver the people and goods of the world in the ever-expanding air age.

Growth of Lockheed Missile Systems Division:

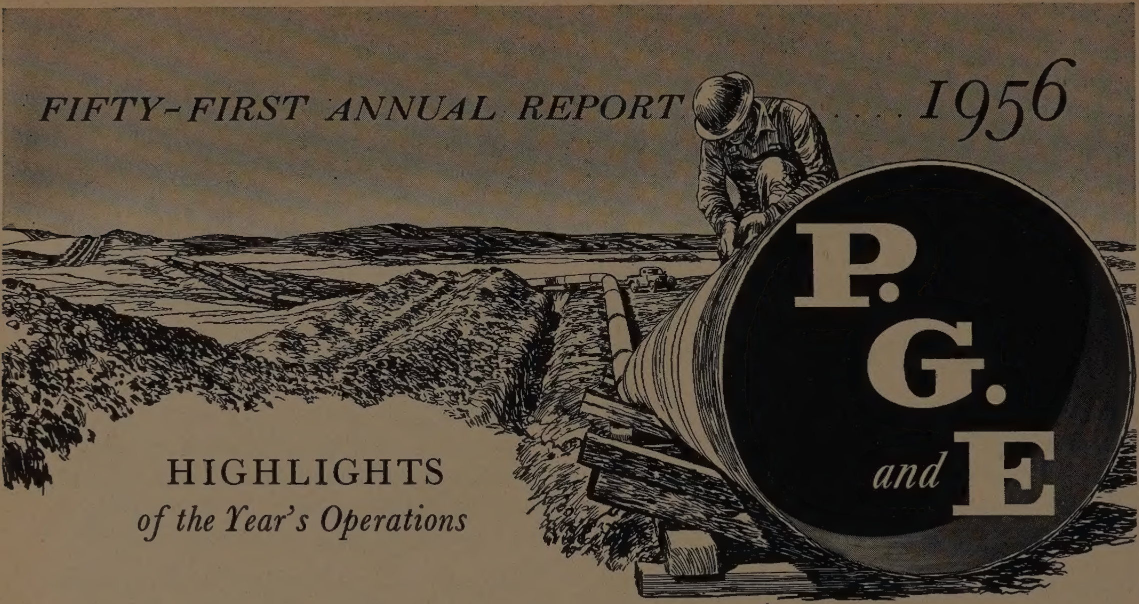


*Square feet of Plant Area in use and under construction.

LOCKHEED *means leadership*

One of a series of messages addressed to the financial community of America

FIFTY-FIRST ANNUAL REPORT 1956



HIGHLIGHTS

of the Year's Operations

Gross operating revenues reached an all-time high of $470,744,000, exceeding those of the previous year by $27,244,000, or 6.1%. Climatic conditions adversely affected the growth in revenues for several major classes of service.

• •

Sales of electricity to customers totaled 17.2 billion kilowatt-hours, a 4.8% increase over the previous year. In addition, we accepted for delivery 1.2 billion kilowatt-hours for the account of others.

• •

Sales of gas to customers totaled 304 billion cubic feet, a gain of 5.8% over the previous year. Warmer-than-normal weather which prevailed during most of the year retarded sales in this department.

Construction expenditures totaled $148 million, an increase of about $15 million over the prior year. The cost of our construction program is increasing, and we expect that expenditures for this purpose will range from $175 to $190 million annually over the next two years.

• •

At the year-end we were supplying utility service to 3,247,929 customers in all branches of our operations. The gain was 123,181, which is below the record established in the previous year, but above the average gain over the past decade.

• •

Proceeds from securities sold to finance our construction program totaled $62 million, the smallest amount sold for this purpose since 1946. Rights were issued to our common stockholders entitling them to subscribe for additional common stock for the first time since 1953.

The Company greatly expanded its activities in the field of nuclear electric power. Through an arrangement with the General Electric Company, the nation's first privately financed nuclear power will be flowing into our system before the close of 1957.

• •

The number of stockholders participating in ownership reached 221,328 at the year-end, a gratifying gain of 3,507. Of the total, 85,874 were preferred stockholders and 135,454 were common stockholders.

• •

Net earnings for the common stock were $3.46 a share based on the average number of shares outstanding, and $3.37 a share based on end-of-period shares. This compares with earnings of $3.32 a share based on the lesser number of shares outstanding in 1955.

J B Black
Chairman of the Board

N. R. Sutherland
President and General Manager

For additional information on this vital western company write our Treasurer, K. C. Christensen, 245 Market St., San Francisco 6, for a copy of P. G. & E.'s Annual Report.

Pacific Gas and
Electric Company

245 MARKET STREET
SAN FRANCISCO 6, CALIFORNIA

P·G·and E· SERVES 47 OF CALIFORNIA'S 58 COUNTIES

Sinclair Reports Its Best Year *To Date*

1956, by all principal standards, was the best year to date for Sinclair Oil Corporation and subsidiaries. New records were set in:

- **NET EARNINGS**
  Total $91,070,812, an increase of 12.8 per cent. This is exclusive of a non-recurring profit of $4,835,355.
- **CRUDE OIL PRODUCTION**
  Up for the seventh consecutive year as total liquid hydrocarbon output averaged 166,528 barrels daily, a 6 per cent rise.
- **REFINERY RUNS**
  Seven domestic refineries processed 437,319 barrels daily, a 5 per cent increase.
- **DOMESTIC SALES**
  Sales of principal products—gasoline, kerosene, fuel oils—were up 2 per cent in volume, 5 per cent in dollar value.
- **TRANSPORTATION VOLUME**
  Both pipe line and marine systems delivered record volumes and prepared for even greater quantities in the future.

The Company's crude oil production and reserves were fortified by an expanded program of exploration, production and acquisition. Significant new fields were found in Texas, Oklahoma, Offshore Louisiana and Venezuela, while the Company's position in the oil empire of western Canada was greatly strengthened.

A major research project will soon be launched with the opening of a new Radiation and Tracer Laboratory at the Company's research center, Harvey, Ill. Effects of powerful gamma ray radiation on petroleum products and processes will be investigated.

Details in Annual Report—Copy on Request

Sinclair *A Great Name in Oil*

SINCLAIR OIL CORPORATION · 600 FIFTH AVENUE, NEW YORK 20, N. Y.

"Three cheers for Coal Chemicals . . .

. . . life would be tough without 'em!"

YOU can't *really* blame young Mrs. Housewife for looking unhappy! To make a point, we've removed everything from her kitchen that could have been made from Pittsburgh coal chemicals. And that includes her plastic products, vitamins, synthetic fibers and paints.

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If your company uses chemicals such as phthalic anhydride, phenol, pyridine or plasticizers, let us further acquaint you with the unique advantages of buying from Pittsburgh Coke . . . *a basic and integrated company!*

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